

Phthalates: Comprehensive Evidence Review



Chemistry, uses, occurrence, exposure, toxicology,
human epidemiology, causality and policy interpretation



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Prepared from the collected phthalate literature and reports
and the supplied key-study set.

Key findings at a glance

Question	Evidence-based answer	Confidence / boundary
Are phthalates one substance?	No. They are a family; chemistry, metabolism, uses and potency differ by compound.	High confidence; do not generalize from one phthalate.
Where does ordinary background exposure come from?	Exposure is compound-specific. For DEHP, diet/food is the primary general-population route; DEP often tracks fragrance/personal-care use, and dust matters more for young children. Direct contact with plastic articles is not usually the dominant absorbed-dose route.	High for DEHP dietary route and DEP/personal-care link; flexible PVC can still be an upstream source.
Do most common plastics contain phthalate plasticizers?	No. PE, PP, PET, PS, PC and unplasticized PVC (uPVC) are not phthalate-plasticized materials and do not contain phthalate plasticizers as constituents of their standard polymer formulations. Phthalate plasticizers are principally associated with flexible PVC and selected specialized formulations.	High for standard resin formulations; trace phthalate detected in a finished article can arise from recycled content, inks, adhesives, coatings or contamination rather than the polymer itself.
What is the strongest hazard signal?	Several ortho-phthalates produce a coherent developmental antiandrogenic pattern in rats at sufficiently high or well-timed doses.	High for animal hazard; human-equivalent risk requires dose, timing and potency assessment.
Are ordinary public exposures proven to cause common disease?	No common disease or clinically meaningful adverse effect has been causally established from ordinary background exposure. Observational associations exist, but remain heterogeneous and vulnerable to confounding and exposure misclassification.	Applies to ordinary population exposure—not high occupational, medical, pharmaceutical or experimental doses.
Where is targeted control most justified?	Sensitive developmental windows and high-exposure medicines, devices, workplaces and concentrated product handling deserve priority.	Risk-management judgment, not proof that every exposure is harmful.

Executive summary

Phthalates are a family of related chemicals, not one substance and not a synonym for plastic. Most common plastics are not phthalate-plasticized materials: PE, PP, PET, PS, PC and unplasticized PVC (uPVC) do not contain phthalate plasticizers as constituents of their standard polymer formulations. Phthalate plasticizers are principally associated with flexible PVC and selected specialized formulations. Phthalates also have non-plastic uses as solvents, fixatives and formulation aids. Their properties vary with side-chain length and branching: low-molecular-weight compounds such as DEP and DBP are relatively mobile and occur in fragrances, coatings and some medicines, whereas higher-molecular-weight compounds such as DEHP, DINP and DIDP are used mainly in flexible PVC and durable products.

The evidence separates into four questions that are often conflated in public discussion: (1) is a phthalate present in a product or environmental medium; (2) does it migrate and produce internal exposure; (3) is the exposure in a dose range that causes an adverse effect in a relevant model; and (4) is a human health association plausibly caused by that exposure rather than by correlated diet, occupation, socioeconomic conditions, healthcare use or co-exposures? A credible review answers all four questions separately.

Animal toxicology provides the most coherent hazard signal. Several ortho-phthalates can suppress fetal testosterone signaling and produce a developmental antiandrogenic pattern in male rats when exposure occurs during a sensitive window. EPA's 2025 cumulative-risk analysis evaluates DEHP, DBP, BBP, DIBP, DCHP and DINP together for a shared fetal-testosterone endpoint (EPA 2025a). The animal evidence establishes hazard at sufficiently high or appropriately timed doses; it does not establish that every environmental detection produces disease in people.

Ordinary population exposure is widespread but generally low relative to animal points of departure. For DEHP, ATSDR identifies food as the primary exposure source in the general population (ATSDR 2022); indoor dust becomes relatively more important for infants and toddlers. DEP exposure is strongly associated with fragrances and personal-care products, while medicines, medical devices and workplaces can dominate in specific scenarios. Accordingly, the dominant absorbed-dose route is usually not simple contact with a plastic article. This does not mean plastics are irrelevant: flexible PVC and some processing or food-contact materials can be upstream contributors to phthalates measured in food or dust.

The central human-health conclusion is that no common disease or clinically meaningful adverse effect has been causally established as a consequence of ordinary background phthalate exposure in the general population. Human epidemiology reports recurring but heterogeneous associations with reproductive hormones, male genital measures, pregnancy and birth size, neurobehavior and cardiometabolic outcomes, but exposure misclassification, confounding, co-exposure and reverse causation remain important limitations. This conclusion does not imply zero hazard or zero risk: sufficiently high doses cause adverse effects in experimental animals, and high-exposure occupational, pharmaceutical and medical scenarios require separate assessment.

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1. Scope, methods and evidence standards

This report synthesizes over 450 phthalate studies from 1974-2026. The collection includes government toxicological profiles, regulatory assessments, biomonitoring studies, source-apportionment analyses, intervention studies, systematic reviews, birth cohorts, materials papers and FDA information pages. Appendix A embeds the full catalogue in the requested study-summary format.

The collection is deliberately broader than a narrowly defined health-effects meta-analysis. Materials and regulatory records help identify where exposure can occur; biomonitoring studies estimate internal dose; animal studies define dose-response and mechanism; human studies test associations; and intervention or regulatory records show whether exposure can be reduced. These evidence types answer different questions and should not be pooled as though they were interchangeable observations.

Evidence layer	Primary question	Most informative design	Typical limitation
Chemistry/materials	What is the compound and where is it used?	Validated identity, formulation and migration testing	Presence does not equal dose or harm
Exposure/biomonitoring	How much reaches people?	Repeated, source-linked measurements with quality controls	Spot samples and short half-lives obscure longer-term exposure
Animal toxicology	What dose, window and mechanism produce harm?	GLP or otherwise well-characterized dose-response studies	Species, route and kinetic differences require extrapolation
Human epidemiology	Are biomarkers associated with health outcomes?	Prospective cohorts, repeated samples and preregistration	Confounding, reverse causation and multiple testing
Intervention/regulation	Can exposure be reduced and under what use?	Source-reduction trials and scenario-specific assessments	Short interventions rarely measure clinical outcomes

The report uses “hazard” for the intrinsic ability to cause an effect under some conditions, “risk” for the probability and severity of that effect at a specified exposure, “association” for a statistical relationship, and “causation” only when alternative explanations have been substantially addressed. This terminology is important because a hazard finding, a urinary detection and a population association are each real observations but are not equivalent conclusions.

1.1 Independence, funding and competing interests

This evidence review was independently initiated and prepared without external funding, sponsorship or commissioning. No outside party directed the research question, source selection, evidence grading, interpretation, wording, conclusions, graphics or publication decisions. The work was undertaken without payment for preparation of this report and was not submitted to an external sponsor for review or approval. Evidence was evaluated according to study design, analytical validity, dose and exposure relevance, consistency and causal strength, irrespective of whether a finding was favorable or unfavorable to plastics or any particular material. No competing financial or non-financial interest is declared in relation to the preparation or conclusions of this report.

2. Chemical structure, nomenclature and physicochemical behavior

2.1 Core structure

Most regulated phthalates are ortho-phthalate diesters: two ester side chains are attached to adjacent positions on a benzene ring. The side chains determine molecular mass, branching, vapor pressure, lipophilicity, polymer compatibility and the rate at which the compound leaves a product. “DEHP,” for example, is the common abbreviation for bis(2-ethylhexyl) phthalate; “DINP” refers to a commercial mixture of isononyl phthalate isomers rather than one perfectly defined molecule.

Low-molecular-weight phthalates—DMP, DEP, DBP and DIBP—are more volatile and mobile than DEHP, DINP and DIDP. They have been used in fragrances, coatings, inks, adhesives, cellulose plastics and pharmaceutical excipients. Higher-molecular-weight phthalates are less volatile and are used primarily in flexible PVC, wire and cable, flooring, films, medical tubing and other durable applications. BBP and DCHP occupy intermediate or specialized use profiles.

2.2 Phthalates, terephthalates and substitutes

Terephthalates such as DEHT are positional isomers with the ester groups separated on the benzene ring. They should not automatically be assigned the same toxicological profile as ortho-phthalates. DINCH and other substitutes are chemically different again. “Phthalate-free” therefore needs a defined analytical scope: it may mean free of listed ortho-phthalates, not free of all plasticizers, additives or other extractable chemicals.

Substitution can reduce exposure to a priority phthalate while creating a data gap for the replacement. A responsible assessment compares the replacement’s migration, metabolism, developmental toxicity, endocrine activity, persistence and worker exposure rather than treating “alternative” as synonymous with “safe.”

2.3 Metabolism and biomarkers

After absorption, diesters are rapidly hydrolyzed to monoesters and then often oxidized to secondary metabolites. These metabolites are excreted mainly in urine. Biomonitoring therefore measures a biological consequence of recent exposure, not the parent compound residing in a product. Short half-lives make a spot urine useful for recent exposure but imperfect for ranking chronic dose, especially for products used intermittently or for exposures that vary by day.

Interpretation requires attention to creatinine or specific-gravity adjustment, metabolite selection, laboratory blanks, field contamination, detection limits, batch effects and the timing of collection. A metabolite concentration can reflect food, dust, personal care, medication, occupational take-home exposure or several of these at once. Repeated samples and source-specific questionnaires are much more informative than a single uncontextualized value.

3. Occurrence, uses and environmental reservoirs

3.1 Industrial and consumer uses

Use or reservoir	Commonly relevant compounds	What determines exposure
Flexible PVC and durable goods	DEHP, DINP, DIDP, BBP	Plasticizer loading, migration, temperature, wear and contact medium
Food contact and processing	DEHP, DINP and legacy compounds; jurisdiction-specific	Food fat content, heat, time, packaging and regulatory authorization
Cosmetics, perfumes and fragrances	DEP/MEP; legacy DBP or DMP	Formulation, frequency, skin area, spraying and inhalation
Medicines and enteric coatings	DBP, DEP, DEHP and product-specific excipients	Dose, repeat dosing, formulation and patient age
Medical devices	DEHP and substitutes	Blood/lipid contact, procedure duration, route and patient vulnerability
Indoor dust and surfaces	DEHP, DINP, DBP and mixtures	Product inventory, floor dust, hand-to-mouth behavior and ventilation
Workplace formulation and manufacturing	Concentrated phthalates and mixtures	Air concentration, dermal contact, process enclosure and PPE

Flexible PVC is the archetypal phthalate-plasticized polymer. In contrast, PE, PP, PET, PS, PC and unplasticized PVC (uPVC) are not phthalate-plasticized materials and do not contain phthalate plasticizers as constituents of their standard polymer formulations. A trace phthalate detected analytically in a finished article can come from recycled feedstock, inks, adhesives, coatings, surface contamination or other non-resin components; that is different from the polymer itself being phthalate-plasticized. Polymer identity therefore matters when interpreting a reported phthalate detection.

3.2 Natural occurrence and analytical caution

The natural-occurrence literature reports phthalate esters in plants, algae, fungi, bacteria and other biological materials. The 2021 review in the local key-source set argues that phthalates should not be described as exclusively human-made. At the same time, laboratory and sampling contamination is a persistent concern because phthalates are common in tubing, gloves, solvents, packaging and laboratory environments. Strong claims of natural biosynthesis require procedural blanks, independent confirmation, isotope or biosynthetic evidence where feasible, and controls that exclude contact contamination.

For ordinary human exposure, industrial and consumer sources remain the more consequential explanation. Natural occurrence is scientifically interesting and relevant to environmental cycling, but it does not imply that naturally occurring esters dominate human dose or that their biological activity at environmental concentrations is established.

4. Exposure pathways and relative amounts

Figure 1. From source to evidence

Different sources can produce the same urinary biomarker; the health inference remains source- and dose-specific.

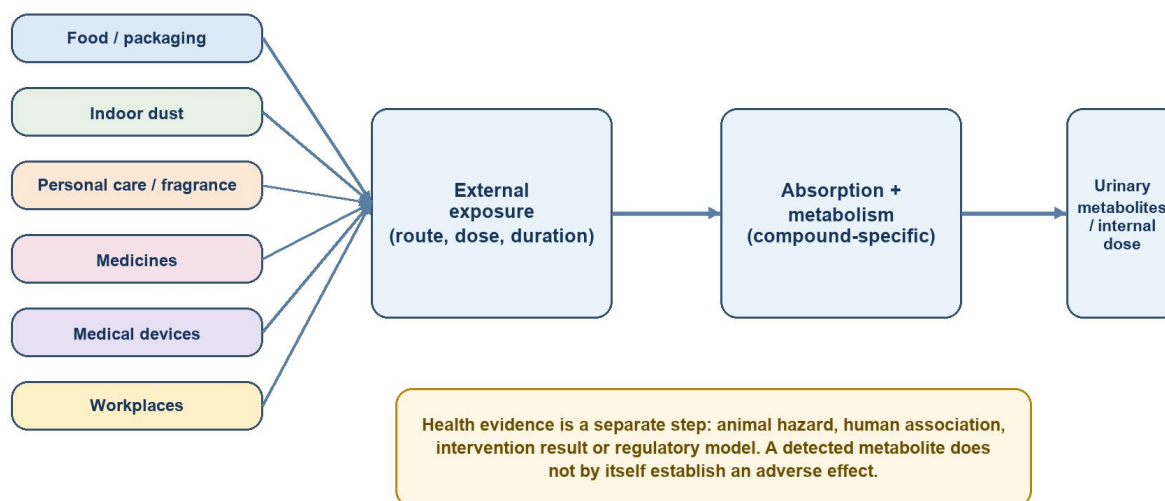


Figure 1. Exposure pathways from products and environments to urinary biomarkers. Different sources can converge on the same biomarker; source identification and dose reconstruction must precede health inference.

4.1 Food and dietary exposure

For DEHP and several higher-molecular-weight phthalates, diet is a major—and for DEHP, ATSDR identifies it as the primary—general-population exposure route. Phthalates can enter food from multiple points, including processing equipment, tubing, gloves, inks, adhesives, food-contact materials and contaminated environments. Consequently, ‘diet is the dominant source’ is an exposure-route conclusion, not proof that a particular plastic package caused a person’s biomarker.

In the NHANES analysis by Zota, Phillips and Mitro (2016), high fast-food consumers had approximately 23.8% higher summed DEHP metabolites and 39.0% higher summed DiNP metabolites than nonconsumers. The finding supports diet, processing and packaging as modifiable pathways, but the cross-sectional design cannot determine which component of fast-food consumption was responsible or whether the difference translates into a clinical effect.

4.2 Indoor dust and child exposure

Dust is an important pathway for toddlers because higher hand-to-mouth activity combines with relatively low body weight. ATSDR’s DEHP assessment indicates that food contributes roughly 95% of total oral exposure for adults and children in the cited scenario, while food and dust are more comparable for infants and toddlers. Dust is not a single source: it integrates emissions from flooring, upholstery, electronics, toys, building materials, personal-care residues and tracked-in contamination.

4.3 Personal-care products, perfumes and cosmetics

Fragrance-related DEP is rapidly reflected in urinary MEP. Multiple personal-care studies found that product-use frequency predicts urinary metabolites, including early work by Duty et al. and Mexican and HERMOSA analyses. The HERMOSA intervention reduced urinary MEP by 27.4% after three days of phthalate-free product substitution, demonstrating a short-lived and modifiable exposure route. The intervention did not show that the baseline exposure caused disease, and not every metabolite changed significantly.

Perfume-counter workers and people who spray fragrance repeatedly may have higher short-term inhalation and dermal exposure than occasional users. The appropriate comparison is not “perfume versus touching plastic” as labels; it is the absorbed dose from the specific formulation, duration, ventilation, skin area and frequency. A concentrated medication dose, a medical-device exposure and occupational handling can each exceed background contact with a finished polymer article.

4.4 Medicines and medical procedures

Phthalates can be used in enteric coatings, capsules, excipients, tubing, blood bags, dialysis circuits and other medical products. Oral pharmaceutical exposure is unusual because the product is intentionally dosed and may be taken repeatedly. Medical-device exposure can be higher still because the route may be parenteral and the chemical can partition into blood or lipid-containing fluids. These scenarios deserve product-specific dose reconstruction and clinical-risk assessment; they should not be inferred from ordinary household contact.

4.5 Occupational exposure

Workers in formulation, PVC compounding, printing, flooring, recycling, fragrance production, healthcare and waste handling may encounter higher air, surface and dermal concentrations than the general population. EPA’s final DINP risk evaluation identified unreasonable risk for some worker conditions of use, while not identifying unreasonable risk for most consumer conditions evaluated under its TSCA scope (EPA 2025b). That contrast illustrates why exposure scenario matters.

Illustrative scenario	Evidence or estimate in the local set	How to interpret it
General population, DEHP	ATSDR broad estimate about 1–30 µg/kg/day	A range across ages and assumptions, not a universal dose
Fast-food consumers	23.8% higher summed DEHP and 39.0% higher DiNP metabolites	Exposure-source association; not a health effect
Personal-care intervention	27.4% MEP reduction after a 3-day product substitution	Rapidly reversible source contribution
Infants/toddlers	Higher body-weight-normalized intake; dust can approach food contribution	Behavior and body weight amplify exposure
Medical devices	Potentially orders of magnitude above background for some procedures	Route and procedure-specific clinical assessment
Workers	EPA identified unreasonable risk for some DINP uses	Concentrated materials and repeated contact change the risk profile

The practical conclusion is that ‘plastic’ is not a single exposure source and direct contact with plastic articles is usually not the dominant route of absorbed phthalate dose. For DEHP, diet is primary; for DEP, fragrance and personal-care use can dominate; dust is relatively more important in young children; and medicines, medical devices and workplaces can dominate in specialized populations. Some food and dust contamination can still originate upstream from plasticized PVC or processing materials, so source attribution requires the specific compound, route, product and dose.

4.6 Illustrative body-weight-normalized exposure estimates

The local exposure compilation includes illustrative age-group estimates for individual phthalates. The following values are presented only to show relative scale across life stages; they are not universal current averages and should not be substituted for product-specific measurements. Body-weight normalization makes infant and toddler exposures appear higher even when their absolute mass intake is smaller.

Group	DEHP (µg/kg-day)	DINP (µg/kg-day)	Interpretive point
Women of reproductive age	1.6	5.1	Ordinary population estimate under the cited scenario
Infants	12.2	20.7	Higher body-weight-normalized intake
Toddlers	15.7	30.8	Dust and hand-to-mouth behavior are important
Children	5.4	14.3	Intermediate age-group estimate

These values illustrate why age, body weight and behavior matter, but they do not establish that toddlers experience an adverse effect. Risk interpretation still requires the compound's potency, the relevant point of departure, uncertainty factors and the actual exposure distribution. A population mean can also conceal a small high-exposure subgroup, while a high percentile does not describe everyone.

Figure 2. Toxicokinetics and biomonitoring

Urine is a sensitive marker of recent exposure, not a direct measure of the amount in a product or a diagnosis.

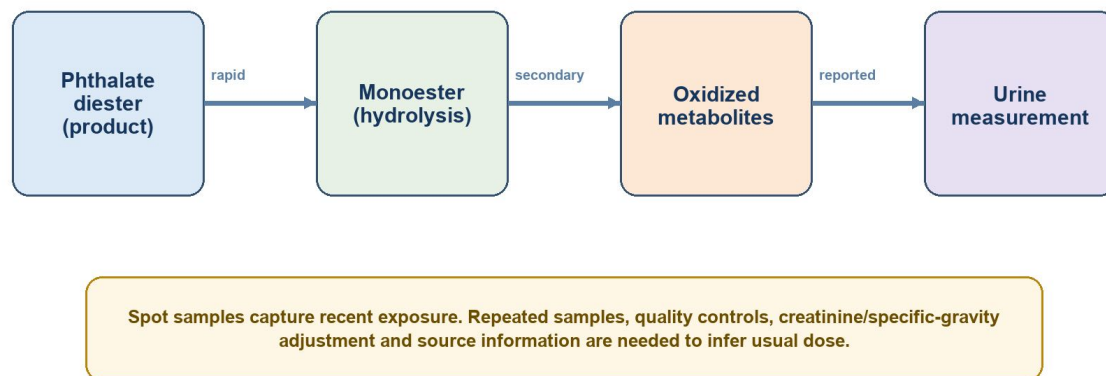


Figure 2. Phthalate toxicokinetics and biomonitoring. Because metabolism is rapid, a spot urine is most useful for recent exposure and is not a direct measure of chronic dose.

5. Toxicokinetics and internal-dose interpretation

Phthalates are generally rapidly metabolized, which is both useful and limiting. Rapid metabolism makes urinary metabolites sensitive indicators of recent exposure and means that a source-reduction intervention can show a measurable response within days. It also means that a single sample is a noisy proxy for long-term average exposure, particularly when exposure is episodic or when the sample is collected after a meal, a cosmetic application, a medication dose or a workplace shift.

Parent compounds and metabolites differ in toxicological relevance. Some monoesters are biologically active, while oxidized metabolites can be more stable biomarkers with different potency. Summed metabolite measures improve coverage but require validated molar conversions and assumptions about metabolic fractions. Comparing raw concentrations across studies without harmonizing units, creatinine correction, age, sex and collection timing can create misleading rankings.

Internal dose is not identical to external dose. Absorption differs by oral, dermal, inhalation and parenteral route; metabolism differs by age and physiology; and fetal exposure depends on maternal kinetics, placental transfer and timing. EPA's human-equivalent dose and relative-potency-factor framework attempts to align these dimensions for a defined endpoint, but it is not a universal conversion for every health outcome.

Figure 3. Illustrative dose-scale comparison

The comparison is conceptual and endpoint-specific; it is not a universal safe-dose plot.

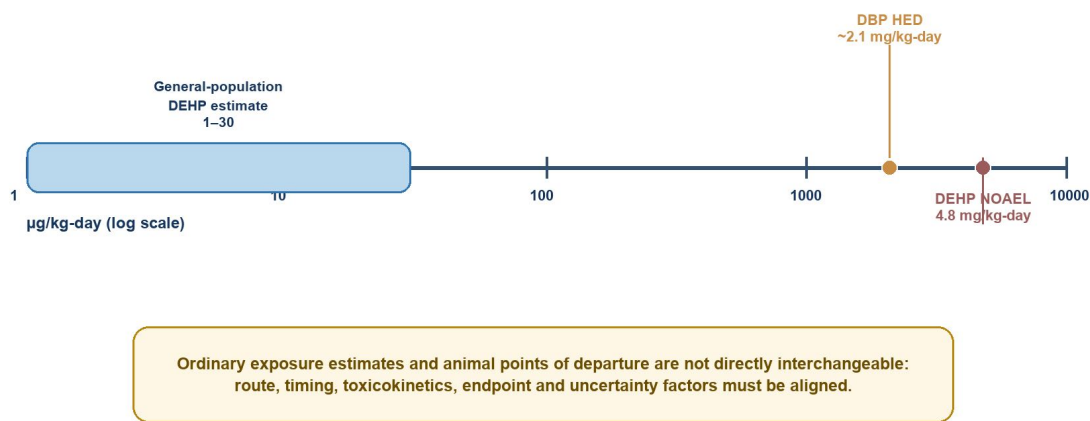


Figure 3. Conceptual dose-scale comparison. The visual highlights the large separation between ordinary exposure estimates and selected animal points of departure while retaining the endpoint and uncertainty caveat.

6. Animal toxicology and dose-response

6.1 Developmental antiandrogenic pathway

The best-developed animal pathway is a developmental antiandrogenic syndrome in male rats exposed during a sensitive fetal or neonatal window. Endpoints include reduced fetal testosterone signaling, shorter anogenital distance, nipple retention, hypospadias or cryptorchidism-related changes, altered reproductive-tract development and later sperm or fertility effects. The endpoints form a coherent mechanistic sequence, but potency differs across compounds and studies.

6.2 Other organ systems and endpoints

Liver peroxisome proliferation, kidney effects, developmental neurobehavior, metabolic effects and high-dose tumor findings occur in compound-specific studies. Some rodent liver responses are strongly dose- and species-dependent and should not be transferred mechanically to humans. Neurodevelopmental and metabolic findings are important research areas, but the human evidence is less consistent than the developmental reproductive mechanism.

6.3 Points of departure and benchmark interpretation

EPA's 2025 cumulative technical support document (EPA 2025a) selected a DEHP NOAEL of 4.8 mg/kg-day, corresponding to a human-equivalent dose of about 1.1 mg/kg-day, for the shared fetal-testosterone endpoint. Supporting DEHP studies placed NOAELs around 1–5 mg/kg-day and LOAELs around 10–15 mg/kg-day. For DBP, a BMDL5 of 9 mg/kg-day corresponded to a human-equivalent point of departure of about 2.1 mg/kg-day. EPA's relative potency factors were DEHP 0.84, DBP 1, BBP 0.52, DIBP 0.53, DCHP 1.66 and DINP 0.21.

A NOAEL is not a guarantee of zero risk and is not a single universal threshold. It is the highest tested dose in a particular study at which the selected adverse effect was not detected under the study's conditions. A benchmark dose or lower confidence limit incorporates more of the dose-response curve, but still depends on endpoint choice, model form and study quality. Human exposure is best interpreted as a margin relative to a defined point of departure with uncertainty factors, not as a direct comparison between a urine concentration and an animal feed concentration.

7. Human evidence by health endpoint

7.1 Reproductive hormones and male fertility

The 2024 DEHP systematic review and meta-analysis included 37 studies and 28,911 participants. In men, it reported small statistical associations between selected DEHP metabolites and total testosterone, free androgen index, SHBG and FSH. For total testosterone, the pooled analysis expressed the association as a percentage change rather than an absolute hormone concentration and did not establish that testosterone generally fell below clinical reference ranges or that the prevalence of hypogonadism increased. Signals were heterogeneous and were influenced by study population, including the inclusion of infertile men.

The EPA systematic review of human male reproductive outcomes found heterogeneous evidence across semen, hormone, fertility and genital endpoints. Associations were more repeatedly reported for DEHP and DBP than for some other compounds, but exposure misclassification, cross-sectional designs, co-exposure and inconsistent outcome definitions limit certainty. A clinically meaningful population effect would be more convincing if it persisted in repeated-sample prospective cohorts with exposure-response gradients and independent replication.

7.2 Prenatal genital development

The TIDES cohort (Swan et al. 2015) reported inverse associations between first-trimester DEHP metabolites and male anogenital distance, but not in girls. A Swedish cohort (Bornehag et al. 2015) reported roughly a 4% reduction in a shorter anogenital-distance measure per interquartile increase in DiNP metabolites. These are sensitive-window endpoints with biological plausibility from animal studies, yet both are observational and modest in magnitude. Limited prenatal sampling and correlated metabolites make attribution to one phthalate difficult.

7.3 Pregnancy, birth size and neonatal outcomes

The 2024 prenatal systematic review reported associations with selected pregnancy complications and fetal or neonatal outcomes, but directions and effect sizes varied by metabolite, timing and cohort. A birth-size meta-analysis reported inverse associations between MMP or MEP and birth weight but not consistent associations with length, head circumference or chest circumference. These outcomes are influenced by nutrition, smoking, maternal health, socioeconomic conditions, co-pollutants and measurement timing, so residual confounding is a central concern.

7.4 Neurodevelopment

The 2024 child neurotoxicity systematic review and meta-analysis included 11 cohorts and rated evidence low or very low for most outcome combinations. Small associations were somewhat more consistent for behavior and postnatal cognition than for global developmental scores. The evidence supports continued research, especially with repeated prenatal and childhood sampling, but does not establish a clinically important neurodevelopmental effect at ordinary exposure levels.

7.5 Cardiometabolic outcomes and mortality claims

Some observational studies link phthalate biomarkers with obesity, diabetes, cardiovascular disease or mortality. These endpoints are especially vulnerable to confounding and reverse causation: illness can change diet, medication, healthcare contact and consumer-product use, which can change urinary metabolites. A single spot urine measured after disease onset does not establish a long-term etiologic dose. Modeled attributable-fraction papers can estimate counterfactual deaths under their assumptions, but those deaths were not directly observed or assigned phthalate as the cause on death certificates.

7.6 Acute toxicity and cancer

There is no evidence that ordinary background exposure causes acute poisoning in members of the general public. High-dose occupational, pharmaceutical or medical exposures require separate assessment. Rodent tumor findings at high doses and compound-specific mechanisms should not be summarized as a general claim that everyday contact with plastic causes cancer; carcinogenicity is endpoint- and compound-specific and must be evaluated using human-equivalent exposure and weight-of-evidence methods.

Endpoint	Direction of current evidence	Main reason certainty is limited
Developmental antiandrogenic hazard	Strong in relevant animal models for several ortho-phthalates	Human dose, timing and mixture attribution
Adult hormone associations	Repeated but heterogeneous observational signals	Cross-sectional studies, infertility selection and co-exposure
Male anogenital distance	Modest prenatal associations in selected cohorts	Limited samples and replication
Birth size/pregnancy	Selected associations, variable by metabolite and timing	Maternal lifestyle and socioeconomic confounding
Child neurodevelopment	Low/very-low evidence for most combinations	Multiple testing and exposure misclassification
Cardiovascular disease/mortality	Associations and modeled estimates reported	Reverse causation and strong model dependence
Acute poisoning at background exposure	Not supported	Consistent with low ordinary doses

7.7 What would make a human causal claim substantially stronger?

A strong human causal claim would show that exposure precedes outcome, that repeated or integrated exposure predicts the outcome in a dose-related way, that the association persists after credible adjustment for diet and co-exposures, and that the same endpoint is replicated by independent cohorts. It would also be strengthened by a biologically coherent sensitive window, a mechanism that operates at the observed internal dose, and a source-reduction intervention that changes both biomarker exposure and the relevant health outcome.

Conversely, a claim is weak when it relies on a single post-outcome urine sample, searches many metabolites and outcomes without preregistration, reports no exposure-response gradient, changes direction across cohorts, or treats correlated pollutants and socioeconomic factors as though they were fully controlled by a regression model. This is not a demand for impossible proof; it is a practical hierarchy for deciding how much weight to give different findings.

Figure 4. Why observational associations require causal checks

Several variables can influence both phthalate biomarkers and health outcomes; illness can also change exposure.

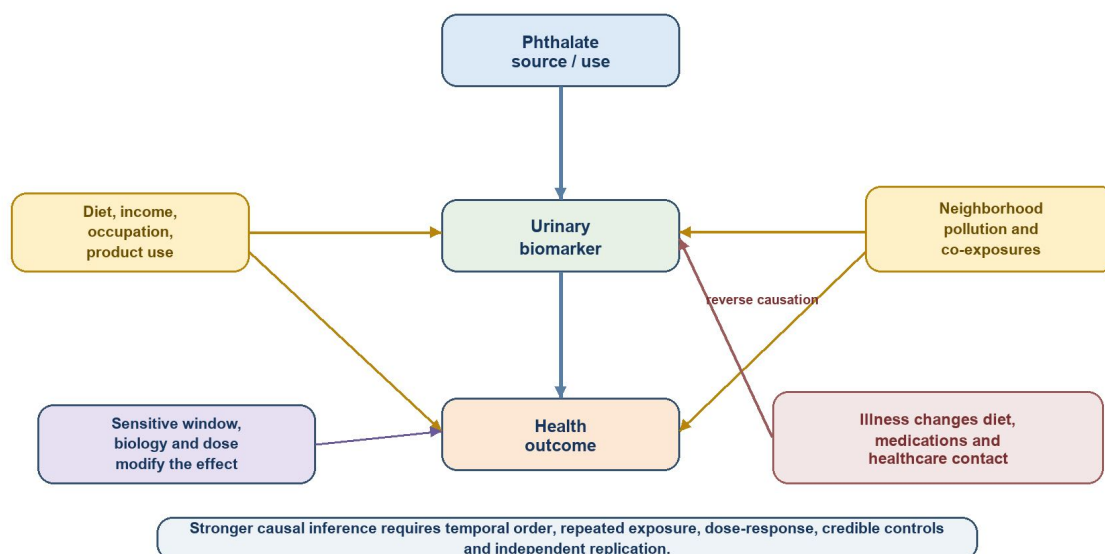


Figure 4. Confounding and causal-inference map. Exposure-source variables, co-pollutants and reverse causation can create or distort associations unless addressed by design and analysis.

8. Confounding, causality and Bayesian interpretation

People with higher phthalate biomarkers may differ systematically from people with lower biomarkers. Relevant factors include diet, food preparation, household income, occupation, smoking, obesity, medication use, healthcare contact, housing quality, neighborhood pollution and exposure to multiple other chemicals. These factors can confound an association even when a statistical model adjusts for some of them. Adjustment can also introduce bias if a covariate is itself downstream of exposure or disease.

Reverse causation is particularly important for chronic disease. A person who is ill may change diet, take medicines, spend more time in healthcare settings or use different personal-care products. A urine sample collected after those changes can correlate with disease without phthalate being the cause. Prospective sampling before disease onset, repeated measures, negative controls and sensitivity analyses are more informative than a single cross-sectional association.

A Bayesian interpretation should update confidence by study quality and replication, not merely by counting papers. Thousands of heterogeneous studies can still leave a specific causal question unresolved if most use the same weak exposure measure, the same correlated sources or the same flexible analytical choices. Conversely, a small but replicated sensitive-window signal with coherent animal mechanism can matter even if it does not produce a large common disease burden. The relevant question is whether the effect survives independent cohorts, appropriate controls, exposure-response analysis, mechanistic coherence and replication.

The present evidence does not justify a claim of zero risk. It does, however, support a narrower and important conclusion: no common disease or clinically meaningful adverse outcome has been causally established from ordinary background phthalate exposure in the general population. The most defensible Bayesian position is compound- and scenario-specific: strong confidence in certain animal hazards at sufficient doses; moderate confidence that selected high-exposure routes can materially change biomarkers; low-to-moderate confidence for some human developmental or hormonal associations; and low confidence for broad causal claims about population mortality from ordinary exposure.

9. High-exposure and susceptible scenarios

9.1 Pregnancy, fetus and young children

Pregnancy and early development receive special attention because fetal testosterone signaling and organ development are time-sensitive. Children also have higher intake per body weight and greater contact with dust and floors. These facts justify focused monitoring and exposure reduction, but susceptibility is not proof that ordinary exposure produces a clinically measurable effect in every pregnancy or child.

9.2 Medicines

Medicine-related exposure can be episodic, repeated and intentional. Enteric coatings and excipients can contain DBP, DEP, DEHP or other phthalates depending on formulation and jurisdiction. A medication assessment should identify the exact product, daily dose, treatment duration, patient age, route and alternative formulation. “Phthalates in medicines” is not a single exposure estimate.

9.3 Medical devices

Medical-device exposure can be substantially higher than ordinary consumer exposure because the chemical may contact blood, plasma or other lipid-containing fluids and may reach the body through an invasive route. Risk-benefit assessment is context-specific: replacing a device may introduce infection, clotting or mechanical risks. The correct policy is to quantify exposure, prioritize vulnerable patients and evaluate safer alternatives without implying that ordinary household plastic has the same risk profile.

9.4 Fragrance and cosmetics workers

Repeated spraying and handling of concentrated fragrance or cosmetic formulations can increase dermal and inhalation exposure. The HERMOSA intervention shows that reducing personal-care product use can lower MEP quickly, but it did not test long-term health outcomes. Worker studies need personal air monitoring, dermal sampling, product formulation data, ventilation characterization and repeated biomarkers rather than relying only on a consumer questionnaire.

10. Plastic-specific interpretation and source comparison

The statement "plastic contains phthalates" is chemically incorrect as a generalization. Most common plastics are not phthalate-plasticized. PE, PP, PET, PS, PC and unplasticized PVC (uPVC) do not contain phthalate plasticizers as constituents of their standard polymer formulations. Phthalate plasticizers are principally associated with flexible PVC and selected specialized formulations. Trace analytical detection in a finished article may reflect recycled content, inks, adhesives, coatings or contamination and should not be confused with phthalate being part of the polymer formulation.

For the general population, the main exposure route is often not direct contact with plastic. ATSDR identifies diet as the primary source of DEHP exposure; DEP is strongly associated with fragrance and personal-care use; dust matters more in young children; and medicines, medical devices and occupational handling can produce distinct, sometimes much higher exposures. Flexible PVC can still be an upstream reservoir for some phthalates, but risk comparison should be based on compound-specific absorbed dose rather than the label 'plastic.'

Question	What can be concluded	What cannot be concluded
Is a phthalate present?	The product or sample contains a detected compound	That the user absorbed a harmful dose
Did it migrate?	A defined test condition produced measurable release	That ordinary use produces the same release
Was exposure measurable?	A biomarker indicates recent internal exposure	That the exposure caused disease
Was a health association observed?	A statistical relationship was reported	That confounding and reverse causation were excluded
Was risk modeled?	A counterfactual estimate follows stated assumptions	That the modeled cases are observed chemical-caused deaths

11. Regulatory and risk-assessment framework

EPA's 2025 cumulative-risk analysis is important because it evaluates six phthalates together using relative potency factors and a shared fetal-testosterone endpoint (EPA 2025a). The analysis selected a benchmark margin of exposure of 30. Modeled cumulative margins were generally above that benchmark for assessed groups, although high-end male-child margins and other scenario-specific uncertainties deserve attention. The risk cup was estimated at roughly 1.7–15.5% full for the groups evaluated under the model. These are model outputs under the assessed TSCA scenarios—not observed disease counts and not a universal individual-risk estimate.

EPA's final DINP risk evaluation found unreasonable risk for some worker conditions of use but not most consumer conditions evaluated under TSCA assumptions. TSCA does not cover food, medicines, cosmetics or medical devices regulated by other agencies. FDA maintains separate information on phthalates in cosmetics and food-contact applications; its cosmetics information identifies DEP as the most common phthalate in surveyed U.S. cosmetics and describes DBP and DMP as uncommon in surveyed products.

Regulation should be use-specific, transparent about assumptions and attentive to regrettable substitution. A restriction on DEHP in a medical device may reduce one hazard while requiring engineering controls and clinical validation. A “phthalate-free” claim may reduce a listed compound while replacing it with a poorly characterized plasticizer. The most informative regulatory record includes exposure estimates, points of departure, uncertainty factors, vulnerable populations, excluded uses and post-market verification.

11.1 Jurisdictional boundaries and legacy uses

A regulatory conclusion is always bounded by the agency, statute and conditions of use that were assessed. A TSCA finding does not automatically resolve food-contact, pharmaceutical, cosmetic or medical-device exposure. FDA authorization or market surveillance does not substitute for an occupational risk assessment. Historical use data also matter: a legacy compound can remain in buildings, recycled materials or old products after new use has declined, while a replacement compound can rise in biomonitoring before its hazard database is mature.

The most useful regulatory comparison is therefore a matrix: compound, product, route, user group, duration, measured or modeled dose, point of departure, uncertainty treatment and excluded scenarios. Broad statements such as “banned” or “approved” hide the information needed to estimate actual risk.

12. Evidence gaps and priority research

The field is mature enough to support targeted action, but not mature enough to close every causal question. The highest-value research would connect source-specific exposure reduction to repeated biomarkers and prespecified health outcomes. It should also distinguish ordinary consumer exposure from medicines, devices and occupational scenarios rather than pooling them into one average.

12.1 Minimum design specification for a decisive cohort

A particularly informative cohort would collect repeated maternal samples before and during pregnancy, cord or neonatal samples, and repeated childhood samples; measure parent-related and oxidized metabolites with rigorous blanks; record diet, product use, medication, occupation, housing and neighborhood co-pollutants; and preregister a small number of clinically meaningful endpoints. It would use negative-control outcomes and exposures, report the full exposure distribution, test nonlinear and mixture models, and replicate its primary result in an independent laboratory or cohort.

For high-exposure products, the ideal design would combine formulation records, migration testing, personal monitoring and biomonitoring. For medical devices, exposure should be linked to procedure duration, fluid composition, device material and clinical outcome. For perfumes and cosmetics, the study should distinguish

occasional consumer use from repeated occupational spraying. These design choices would directly address the largest uncertainties in the current evidence base.

- Prospective pregnancy and childhood cohorts with repeated urine samples, validated metabolite panels, exposure reconstruction and preregistered developmental endpoints.
- Independent replication of anogenital-distance, hormone and birth-size findings across cohorts with different diets, formulations and analytical laboratories.
- Large occupational and fragrance-worker studies combining personal air, dermal, product and urinary measurements with dose-response analysis.
- Medicine and medical-device studies that quantify patient dose, route, procedure duration, formulation and clinical outcomes.
- Duplicate-diet and packaging-migration studies that separate food processing, packaging, household handling and socioeconomic diet patterns.
- Randomized or well-controlled source-reduction interventions followed long enough to measure developmental, reproductive or cardiometabolic outcomes.
- Head-to-head evaluation of substitutes such as DEHT and DINCH for developmental, endocrine, metabolic and mixture toxicity.
- Improved methods to distinguish true natural occurrence from laboratory and sampling contamination.
- Independent replication and transparent sensitivity analyses for cardiovascular and mortality models, including negative controls and alternative confounder sets.
- Public release of raw exposure distributions, metabolite quality-control data, preregistered outcomes and complete code for cumulative-risk models.

13. Overall conclusions

Phthalates are well studied relative to many environmental chemicals, but the evidence is not uniform across compounds, products, routes or endpoints. Several ortho-phthalates have a strong, dose-dependent developmental hazard in animals. Ordinary public exposure is widespread but generally well below the animal points of departure used in current risk assessment. No common disease or clinically meaningful adverse effect has been causally established as resulting from ordinary background phthalate exposure in the general population. Human studies report small and heterogeneous associations, with the most coherent signals involving sensitive developmental windows and selected hormonal outcomes; exposure misclassification, confounding and correlated co-exposures limit causal attribution.

Exposure attribution is likewise compound- and scenario-specific. Most common plastics are not phthalate-plasticized materials: PE, PP, PET, PS, PC and uPVC do not contain phthalate plasticizers as constituents of their standard polymer formulations; phthalate plasticization is principally associated with flexible PVC and selected specialized formulations. For DEHP, diet is the primary general-population route; for DEP, personal-care and fragrance use can dominate; dust is relatively more important in young children; and medicines, medical devices and workplaces can create much higher or qualitatively different exposures. Direct contact with a plastic article is therefore not a proxy for absorbed phthalate dose, although flexible PVC can be an upstream reservoir for some compounds. The best-supported practical response is targeted: control high-potency phthalates in sensitive uses, reduce avoidable occupational and medical exposure, improve source-specific exposure data and evaluate substitutes before broad adoption. The evidence does not support claims that ordinary plastic contact is proven to cause common disease, that every urinary detection is harmful, or that modeled attributable mortality is an observed phthalate-caused death count.

Appendix A. Phthalate study summaries

The complete catalogue below presents the study summaries and the additional key sources supplied for the 2026 review. Each entry follows the requested design/findings/risk-relevance/limitations format.

Catalogue note: Findings have been repaired to remove OCR, HTML/web-archive, publisher-front-matter and affiliation artefacts. For identifiable published studies, the DOI/publisher record, PubMed or another authoritative online record was used where available; a clearly attributable published abstract or source passage was used only when it could be matched confidently to the cited work. No result is inferred from corrupted or incomplete text. Non-primary records are identified as such, and the original publication/report remains authoritative.

Core phthalate materials

U.S. Environmental Protection Agency. 2020. www.epa.gov/oppt/existingchemicals/pubs/phthalates ap 2009 1230 final.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00001.

Edward T. Kopesky, Timothy S. Haddad, Gareth H. McKinley & Robert E. Cohen. 2005. Miscibility and viscoelastic properties of acrylic polyhedral oligomeric silsesquioxane-poly(methyl methacrylate) blends POSS plasticized as well as DOP.

Design: Materials / plasticizer study or technical source.

Findings: Two acrylic POSS species were blended with PMMA. Both acted as plasticizers when molecularly dispersed; at 5 vol% unmodified POSS, T_g fell 4.9 °C versus 17.4 °C for 5 vol% DOP, while higher POSS loadings showed increasing phase separation.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00002. DOI/link: 10.1016/j.polymer.2005.04.001

Sharon Y. Soong, Robert E. Cohen & Mary C. Boyce. 2007. poss-plasticizer in PVC as good as DOP lol.

Design: Materials / plasticizer study or technical source.

Findings: Polyhedral oligomeric silsesquioxane (POSS) was evaluated as a PVC plasticizer. Methacryl-POSS was miscible with PVC only to about 15 wt% on its own, but ternary PVC/POSS/DOP formulations allowed substantially higher POSS loading; formulations matched for glass-transition temperature showed different mechanical properties, demonstrating that POSS can be used to tune plasticized-PVC mechanics.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00003. DOI/link: 10.1016/j.polymer.2007.01.021

Dylan Dae Bong Jung, D. Bhattacharyya & A. J. Easteal. 2003. Mechanical and thermal properties of poly(butylene terephthalate)-poly(ethylene naphthalate), and Nylon66-poly(ethylene naphthalate) blends.

Design: Materials / plasticizer study or technical source.

Findings: The study measured tensile modulus, tensile strength and impact strength of PBT/PEN and Nylon66/PEN melt blends and characterized thermal/thermomechanical behavior by DSC and dynamic mechanical thermal analysis. This is a polymer-blend materials paper, not a phthalate exposure study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00004. DOI/link: 10.1023/A:102442232582

Dylan Dae Bong Jung, D. Bhattacharyya & A. J. Easteal. 2003. Mechanical and thermal properties of poly(butylene terephthalate)-poly(ethylene naphthalate), and Nylon66-poly(ethylene naphthalate) blends.

Design: Materials / plasticizer study or technical source.

Findings: The study measured tensile modulus, tensile strength and impact strength of PBT/PEN and Nylon66/PEN melt blends and characterized thermal/thermomechanical behavior by DSC and dynamic mechanical thermal analysis. This is a polymer-blend materials paper, not a phthalate exposure study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00005. DOI/link: 10.1023/A:1024422232582

Javier González-Sálamo, Bárbara Socas-Rodríguez & Javier Hernández-Borges. 2004. Determination of Phthalates in Environmental, Food and Biomaterials - An Analytical Challenge.

Design: Materials / plasticizer study or technical source.

Findings: Bart Tienpont's 2004 Ghent University doctoral thesis addresses analytical determination of phthalates in environmental, food and biological matrices. It is an analytical-methods thesis rather than a single exposure or toxicology experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00006.

Piyawan Leechart, Duangrat Inthorn & Paitip Thiravetyan. 2016. FACTOR AFFECTING DIMETHYL PHTHALATE LEACHED FROM PET BOTTLES.

Design: Occurrence, migration, source or exposure study.

Findings: Twenty-four brands of PET bottles in Thailand were tested for DMP migration. The paper reports greater DMP leaching with increased temperature, longer storage and higher NaCl concentration, and attributes the trend to thermal/hydrolytic degradation under the tested conditions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00007.

Hanne Frederiksen, Ole Nielsen, Holger M. Koch, Niels E. Skakkebaek, Anders Juul, Niels Jørgensen & Anna-Maria Andersson. 2020. Changes in urinary excretion of phthalates, phthalate substitutes, bisphenols and other polychlorinated DANISH ABSTRACT.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Repeated urine samples from young Danish men were used to compare biomarker excretion of legacy phthalates, replacement plasticizers, bisphenols and other phenolic/chlorinated substances from 2009 through 2017. The study was designed to characterize temporal exposure trends, not clinical effects.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00008. DOI/link: 10.1016/j.ijheh.2019.10.002

Paul J. Liroy, Chris Gennings, Russ Hauser, Holger M. Koch & Andreas Kortenkamp. 2021. Changing Trends in Phthalate Exposures.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00009. DOI/link: 10.1289/ehp.1408629

Shanna H. Swan. 2008. Environmental phthalate exposure in relation to reproductive outcomes and other health endpoints in humans.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: This review summarized human phthalate studies across prenatal, neonatal, childhood and adult exposure. It reported statistically significant associations for metabolites of several phthalates, while emphasizing that much of the human evidence, particularly in males, was being interpreted in relation to anti-androgenic effects established in experimental studies.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00010. DOI/link: 10.1016/j.envres.2008.08.007

Britt E. Erickson. 2026. Phthalates | FDA.

Design: Occurrence, migration, source or exposure study.

Findings: FDA states that phthalates have been used in cosmetics as plasticizers, solvents and fragrance stabilizers; historically DBP, DMP and DEP were principal cosmetic phthalates. FDA states that it does not currently have evidence that phthalates as used in cosmetics pose a safety risk and continues market surveillance.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00011.

T CONNOR, J THEISS, H HANNA, D MONTEITH & T MATNEY. 2021. BPA and Phthalates Chemicals found in our homes Information and Tips.

Design: Materials / plasticizer study or technical source.

Findings: Phthalates are used to make soft, flexible plastics such as PVC ("vinyl") • Use less canned and processed foods. They are also used to make fragrances found when possible. • Store food and drinks in non-plastic containers, such as glass, stainless steel, or ceramic.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00012.

Mercè Garí, Holger M. Koch, Claudia Pálmke, Agnieszka Jankowska, Ewelina Wesółowska, Wojciech Hanke, Dennis Nowak, Stephan Bose-O'Reilly & Kinga Polańska. 2019. Determinants of phthalate exposure and risk assessment in children from Poland.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In Polish children, the most prevalent urinary biomarkers included MEP, MiBP, MnBP, summed DEHP metabolites and summed DiNP metabolites. Body mass index, place of residence and breastfeeding were among determinants associated with biomarker levels; upper-percentile exposures for some phthalates exceeded the study's health-based screening values.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00013. DOI/link: 10.1016/j.envint.2019.04.011

Hongyu Luo, Guangyu Sun, Yanping shi, Yong Shen & Kai Xu. 2014. Evaluation of the Di(2-ethylhexyl)phthalate released from polyvinyl chloride medical devices that contact blood.

Design: Occurrence, migration, source or exposure study.

Findings: The study validated GC-MS measurement of DEHP released from blood-contacting PVC medical devices and compared an ethanol/water extraction medium with whole blood. Reported recoveries were approximately 90-102%, supporting the method as a screening approach for device DEHP release.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00014. DOI/link: 10.1186/2193-1801-3-58

Cosmetic Ingredient Review Expert Panel. 1985. Final Report on Safety Assessment of Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: The Cosmetic Ingredient Review assessment evaluated DBP, DMP and DEP used in cosmetics. The report described rapid absorption/metabolism/excretion and generally low acute, subchronic and chronic toxicity in the animal data available at that time; it is a historical safety assessment and predates much of the modern developmental-toxicity literature.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00015.

Matthias Wittassek, Gerhard Andreas Wiesmüller, Holger Martin Koch, Rolf Eckard, Lorenz Dobler, Johannes Müller, Jürgen Angerer & Christoph Schlüter. 2007. Internal phthalate exposure over the last two decades--a retrospective human biomonitoring study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: A retrospective biomonitoring study analyzed 24-hour urine from 634 young German adults sampled in nine years between 1988 and 2003 for metabolites of DnBP, DiBP, BBzP, DEHP and DiNP, allowing long-term trends in internal exposure to be evaluated.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00016. DOI/link: 10.1016/j.ijheh.2007.01.037

Holger M. Koch, Matthew Lorber, Krista L.Y. Christensen, Claudia Pälme, Stephan Koslitz & Thomas Brüning. 2013. Identifying sources of phthalate exposure with human biomonitoring - Results of a 48h fasting study with urine collection and personal activity patterns.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five adults completed a 48-hour fast on glass-bottled water while serial urine and activity data were collected. The study used changes in urinary phthalate metabolites during fasting to distinguish diet-related exposure from continuing non-dietary sources.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00017. DOI/link: 10.1016/j.ijheh.2012.12.002

Simo P. Porras, Jani Koponen, Minna Hartonen, Hannu Kiviranta & Tiina Santonen. 2021. Non-occupational exposure to phthalates in Finland - ABSTRACT.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The aim of this study was to assess phthalate exposure of non-occupationally exposed working aged population in Finland.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00018. DOI/link: 10.1016/j.toxlet.2020.06.021

Rose O. Sulentic, Irina Dumitrascu, Nicole C. Deziel & Anca E. Gurzau. 2018. Phthalate Exposure from Drinking Water in Romanian Adolescents.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Among 40 Romanian adolescents, the study compared water consumption and consumer-product use with urinary phthalate biomarkers. It was designed to assess the contribution of drinking water and other behaviors to adolescent phthalate exposure rather than to establish a health effect.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00019. DOI/link: 10.3390/ijerph15102109

Hermann Fromme, Thomas Küchler, Thomas Otto, Konstanze Pilz, Josef Müller & Andrea Wenzel. 2002. Occurrence of phthalates and bisphenol A and F in the environment.

Design: Occurrence, migration, source or exposure study.

Findings: German environmental samples were analyzed for BPA, BPF, BBP, DBP and DEHP. DEHP dominated the measured phthalates: 0.33-97.8 µg/L in surface water, 1.74-182 µg/L in sewage effluent, 27.9-154 mg/kg dry weight in sewage sludge and 0.21-8.44 mg/kg in sediment; DBP was minor and BBP was detected only in a few samples at low levels.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00020. DOI/link: 10.1016/S0043-1354(01)00367-0

Sudipta Dutta, Diana K. Haggerty, Daniel A. Rappolee & Douglas M. Ruden. 2020. Phthalate Exposure and Long-Term Epigenomic Consequences - A Review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review evaluated toxicogenomic and epigenomic evidence on phthalates, including DNA methylation and possible multigenerational or transgenerational effects. It summarizes experimental and epidemiologic evidence rather than demonstrating such effects at ordinary human exposure.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00021. DOI/link: 10.3389/fgene.2020.00405

Holger Martin Koch, Andreas Haller, Tobias Weiß, Heiko-Udo Käßlerlein, Joachim Stork & Thomas Brüning. 2011. Phthalate exposure during cold plastisol application—a human biomonitoring study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five workers applying a DINP-based plastisol were studied using pre- and post-shift urinary metabolites, with ten workers from the same plant as a comparison group. The comparison group had phthalate biomarker levels in the range of the general German population, while the study documented occupational uptake associated with plastisol work.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00022. DOI/link: 10.1016/j.toxlet.2011.06.010

Victoria M. Pak, Linda A. McCauley & Jennifer Pinto-Martin. 2011. Phthalate Exposures and Human Health Concerns A Review and Implications for Practice.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review states that high phthalate exposures have been associated with adverse male fetal reproductive development and that animal studies consistently demonstrate reproductive effects, while noting that additional human epidemiology is needed to characterize human risk.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00023. DOI/link: 10.3928/08910162-20110426-01

Joseph S. Alpert & Qin Mary Chen. 2021. Microwaving in Plastic: Is it Safe? | Time.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00024.

Iman Al-Saleh & Rola Elkhatib. 2016. Screening of phthalate esters in 47 branded perfumes.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00025. DOI/link: 10.1007/s11356-015-5267-z

Aikaterini Zafeiri, Rod T Mitchell, David C Hay & Paul A Fowler. 2021. Over-the-counter analgesics during pregnancy - a comprehensive review of global prevalence and offspring safety.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This comprehensive review evaluated prevalence of over-the-counter analgesic use in pregnancy and evidence on offspring safety. The authors found the safety literature conflicting and emphasized limitations that prevent simple causal conclusions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00026. **DOI/link:** 10.1093/humupd/dmaa042

Michael A. Kamrin. 2009. Phthalate risks, phthalate regulation, and public health - a review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review compared regulatory risk evaluations with biomonitoring, epidemiologic and animal evidence. The author concluded that assessed human risks were low overall, while noting concerns for particular high-exposure uses such as some medical devices; the article also argued that existing restrictions were unlikely to produce large public-health gains.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00027. **DOI/link:** 10.1080/10937400902729226

Mouen A. Khashab. 2021. phthalates updates live file 508 0.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00028.

Giehae Choi, Gro D. Villanger, Samantha S.M. Drover, Amrit K. Sakhi, Cathrine Thomsen, Rachel C. Nethery, Pål Zeiner, Gun Peggy Knudsen, Ted Reichborn-Kjennerud, Kristin R. Øvergaard, Amy H. Herring, Annette H. Skogan, Guido Biele, Heidi Aase & Stephanie M. Engel. 2021. Prenatal phthalate exposures and executive function in preschool children.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This birth-cohort study examined prenatal urinary phthalate biomarkers in relation to preschool executive function. The authors framed the results as observational associations and noted that prior neurodevelopmental findings vary by metabolite, endpoint and child sex.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00029. **DOI/link:** 10.1016/j.envint.2021.106403

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00030. **DOI/link:** 10.1038/s41370-019-0168-8

Kelly K. Ferguson, Emma M. Rosen, Zaira Rosario, Zlatan Ferić, Antonia M. Calafat, Thomas F. McElrath, Carmen Vélez Vega, José F. Cordero, Akram Alshawabkeh & John D. Meeker. 2019. Environmental phthalate exposure and preterm birth in the PROTECT birth cohort.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In the prospective PROTECT cohort, phthalate and replacement-plasticizer metabolites were measured in urine at three pregnancy visits and evaluated in relation to preterm birth. The design provides repeated prenatal exposure measurements but remains observational.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00031. DOI/link: 10.1016/j.envint.2019.105099

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00032. DOI/link: 10.1038/s41370-019-0168-8

PROTECT Study Team. 2021. PROTECT » PROTECT Study Finds Decrease in Phthalate Exposure Coincides with Increase in Phthalate Re.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00033.

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00034. DOI/link: 10.1038/s41370-019-0168-8

Iman Al-Saleh & Rola Elkhatab. 2016. Screening of phthalate esters in 47 branded perfumes | ABSTRACT.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00035. DOI/link: 10.1007/s11356-015-5267-z

Iman Al-Saleh & Rola Elkhatab. 2016. Screening of phthalate esters in 47 branded perfumes.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00036. DOI/link: 10.1007/s11356-015-5267-z

Lauren E. Johns, Glinda S. Cooper, Audrey Galizia & John D. Meeker. 2015. Exposure assessment issues in epidemiology studies of phthalates.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This methodological review identifies major exposure-assessment problems in phthalate epidemiology, including short biological half-lives, within-person variability and the limitations of single spot urine samples for estimating longer-term exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00037. DOI/link: 10.1016/j.envint.2015.08.005

James L. Preau, Lee-Yang Wong, Manori J. Silva, Larry L. Needham & Antonia M. Calafat. 2010. Variability over 1 Week in the Urinary Concentrations of Metabolites of Diethyl Phthalate and Di(2-Ethylhexyl) Phthalate among Eight Adults - An Observational Study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Eight adults provided repeated urine samples over one week to assess within-person variability of DEP and DEHP metabolites. Because phthalates are rapidly metabolized and excreted, the study tested how well a spot urine sample represents exposure over longer periods.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00038. DOI/link: 10.1289/ehp.1002231

Lauren E Parlett, Antonia M. Calafat & Shanna H Swan. 2013. Women's exposure to phthalates in relation to use of personal care products.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Among 337 women, reported use of 13 personal-care products during the preceding 24 hours was compared with urinary phthalate metabolites. The study evaluated personal-care-product use as a short-term determinant of internal phthalate exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00039. DOI/link: 10.1038/jes.2012.105

Shanna H. Swan, Katharina M. Main, Fan Liu, Sara L. Stewart, Robin L. Kruse, Antonia M. Calafat, Catherine S. Mao, J. Bruce Redmon, Christine L. Ternand, Shannon Sullivan, J. Lynn Teague & the Study for Future Families Research Team. 2005. Decrease in Anogenital Distance among Male Infants with Prenatal Phthalate Exposure.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Maternal urinary phthalate metabolites were evaluated in relation to anogenital distance and related genital measures in male infants. The observational study reported inverse associations for several prenatal phthalate biomarkers, but exposure was estimated from maternal urine and causality cannot be established from the design alone.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00040. DOI/link: 10.1289/ehp.8100

Yuki Ito, Michihiro Kamijima & Tamie Nakajima. 2019. Di(2-ethylhexyl) phthalate-induced toxicity and peroxisome proliferator-activated receptor alpha - a review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes DEHP toxicokinetics and proposed mechanisms for carcinogenic, reproductive and developmental toxicity, with particular attention to PPAR-alpha-dependent and PPAR-alpha-independent pathways.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00041. DOI/link: 10.1186/s12199-019-0802-z

Germaine M. Buck Louis, Melissa M. Smarr, Liping Sun, Zhen Chen, Masato Honda, Wei Wang, Rajendiran Karthikraj, Jennifer Weck & Kurunthachalam Kannan. 2018. Endocrine Disrupting Chemicals in Seminal Plasma and Couple Fecundity.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five classes of non-persistent endocrine-disrupting chemicals were measured in seminal plasma from 339 male partners in a prospective time-to-pregnancy study. Concentrations were lower than in urine; associations with fecundability were generally bidirectional and not statistically significant, with a nonsignificant signal for benzophenones.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00042. DOI/link: 10.1016/j.envres.2018.01.028

Haiyan An, Henan Yu, Yibo Wei, Feng Liu & Jinshao Ye. 2021. [Potential sources of phthalates and bisphenol A and their significance in the development of metabolic diseases] - PubMed.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Nowadays, there is increasing evidence showing that the development of the metabolic syndrome combining obesity, type 2 diabetes mellitus, arterial hypertension and dyslipidemia involves except of traditional risk factors (overnutrition, lack of physical activity, genetic predisposition) also the effect of environmental organic substances called organic pollut

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00043.

Joe M Braun & Russ Hauser. 2021. Phthalates and bisphenol A (BPA).

Design: Materials / plasticizer study or technical source.

Findings: Phthalates are man-made chemicals that give flexibility foods and high fat dairy and meats are particularly high to soft plastics and polyvinyl chloride (PVC) products, in phthalates.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00044. DOI/link: 10.1097/MOP.0b013e3283445675

Lacey Robinson & Rachel Miller. 2015. The Impact of Bisphenol A and Phthalates on Allergy, Asthma, and Immune Function- a Review of Latest Findings.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review examined in-vitro, animal and human-cohort evidence concerning BPA and phthalates in allergy, asthma and immune function. It described emerging signals but also emphasized limitations and the need for stronger mechanistic and epidemiologic evidence.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00045. DOI/link: 10.1007/s40572-015-0066-8

Lidia Mínguez-Alarcón, Andrea Bellavia, Audrey J. Gaskins, Jorge E. Chavarro, Jennifer B. Ford, Irene Souter, Antonia M. Calafat, Russ Hauser & Paige L. Williams. 2021. Paternal mixtures of urinary concentrations of phthalate metabolites, bisphenol A and parabens in relation to pregnancy outcomes among couples attending a fertility center.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In 210 couples undergoing 300 IVF cycles, paternal urinary biomarkers of BPA, parabens and phthalates were analyzed as mixtures in relation to implantation, pregnancy and live birth. The prospective fertility-center study evaluated associations rather than demonstrating causation.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00046. DOI/link: 10.1016/j.envint.2020.106171

Maricel V. Maffini, Birgit Guecke, Ksenia Groh, Bethanie Carney Almroth & Jane Muncke. 2021. Role of epidemiology in risk assessment - a case study of five ortho-phthalates.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Background: The association between environmental chemical exposures and chronic diseases is of increasing concern. Chemical risk assessment relies heavily on pre-market toxicity testing to identify safe levels of exposure, often known as reference doses (RfD), expected to be protective of human health.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00047. DOI/link: 10.1186/s12940-021-00799-8

Germaine M. Buck Louis, Rajeshwari Sundaram, Anne M. Sweeney, Enrique F. Schisterman, José Maisog & Kurunthachalam Kannan. 2014. Urinary bisphenol A, phthalates, and couple fecundity- the Longitudinal Investigation of Fertility and the Environment (LIFE) Study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: The LIFE Study prospectively followed 501 couples after discontinuing contraception and measured environmental chemicals in both partners to evaluate time to pregnancy. This design assessed couple fecundity prospectively rather than using a cross-sectional fertility endpoint.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00048. DOI/link: 10.1016/j.fertnstert.2014.01.022

Yasser Vasseghian, Monireh Alimohamadi, Elena-Niculina Dragoi & Christian Sonne. 2023. A global meta-analysis of phthalate esters in drinking water sources and associated health risks COPY.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This global meta-analysis compiled phthalate concentrations in drinking-water sources and performed health-risk calculations. It reported substantial geographic and source-type variability; the authors' risk estimates depend on the included concentration data and exposure assumptions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00049. DOI/link: 10.1016/j.scitotenv.2023.166846

Yasser Vasseghian, Monireh Alimohamadi, Elena-Niculina Dragoi & Christian Sonne. 2023. A global meta-analysis of phthalate esters in drinking water sources and associated health risks.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This global meta-analysis compiled phthalate concentrations in drinking-water sources and performed health-risk calculations. It reported substantial geographic and source-type variability; the authors' risk estimates depend on the included concentration data and exposure assumptions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00050. DOI/link: 10.1016/j.scitotenv.2023.166846

Yu Wang, Hongkai Zhu & Kurunthachalam Kannan. 2019. A Review of Biomonitoring of Phthalate Exposures.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes human biomonitoring approaches and urinary phthalate metabolite data, emphasizing that urinary metabolites are the standard markers for recent exposure and that interpretation depends on timing, metabolism and study design.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00051. DOI/link: 10.3390/toxics7020021

S Jobling, T Reynolds, R White, M G Parker & J P Sumpter. 1995. A variety of environmentally persistent chemicals including some phthalate plasticizers are weakly estrogenic.

Design: Materials / plasticizer study or technical source.

Findings: In vitro estrogen-receptor assays found BBP and DBP to be estrogenic but less potent than octylphenol. The authors explicitly noted that in-vivo studies were needed before drawing conclusions about human disease relevance.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00052. DOI/link: 10.1289/ehp.95103582

Qian Xu, Xueyan Yin, Min Wang, Haifeng Wang, Niping Zhang, Yanyan Shen, Shi Xu, Ling Zhang & Zhongze Gu. 2010. Analysis of Phthalate Migration from Plastic Containers to Packaged Cooking Oil and Mineral Water.

Design: Occurrence, migration, source or exposure study.

Findings: The study evaluated phthalate migration from commercial plastic containers into cooking oil and mineral water under different temperatures, contact times and static/dynamic conditions. A liquid-chromatographic method with solid-phase extraction was used; migration depended on the food matrix and storage conditions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00053. DOI/link: 10.1021/jf102821h

Meng Meng, Yao Yang, Liang Song, Jian Peng, Shenglong Li, Zhengjun Gao, Youquan Bu & Junwei Gao. 2024. Association between urinary phthalates and phthalate metabolites and cancer risk - A systematic review and meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: A meta-analysis of 11 studies (3,101 cancer cases and 6,858 controls) reported associations between several urinary phthalate measures (including MEHHP, MECPP, DBP and MBzP) and cancer risk. The evidence is observational and heterogeneous, so the pooled associations do not by themselves establish causation.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00054. DOI/link: 10.1016/j.heliyon.2024.e29684

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2025. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00055.

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2025. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00056.

U.S. Environmental Protection Agency. 2023. phthalates actionplan revised 2012-03-14(1).

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Phthalates are produced in high volume, over 470 million pounds per year (EPA 2006).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00057.

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2023. Ref 73 Transfer of phthalates from c-polyvinyl chloride and PEX.

Design: Occurrence, migration, source or exposure study.

Findings: 588 © IWA Publishing 2017 Water Science & Technology: Water Supply | 17.2 | 2017 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically, yet the Philip N.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00058. DOI/link: 10.2166/ws.2016.164

Genoa R Warner & Jodi A Flaws. 2018. Bisphenol A and Phthalates - How Environmental Chemicals Are Reshaping Toxicology.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00059. DOI/link: 10.1093/toxsci/kfy232

Bloomberg News. 2025. Bloomberg Paid Phthalate Claims 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00060.

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2021. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water in Tianjin, China.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00061. DOI/link: 10.1016/j.jhazmat.2020.124891

Juliana FW. Cohen, Scott Richardson, William W. March, Wendi Gosliner & Russ Hauser. 2024. BPA & Phthalates 2024 web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00062.

Juliana FW. Cohen, Scott Richardson, William W. March, Wendi Gosliner & Russ Hauser. 2024. BPA & Phthalates 2024 web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: BPA & PHTHALATES Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report - Epoch Times January 6th 2024 ☐ BPA and phthalates reported in most foods as ng per serving levels ☐ One nanogram is 0.00000001g ☐ BPA levels far lower than in prior studies ☐ Phthalates found at levels below safe limits in all cases ☐ BPA found at levels below safety limits in all cases The FDA and other organizations have studied these matters for decades and found that exposure is not a threat.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00063.

Consumer Reports. 2024. BPA & Phthalates Consumer Reports 2024.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00064.

Consumer Reports. 2024. BPA & Phthalates Consumer Reports 2024.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: BPA & PHTHALATES Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report - Epoch Times January 6th 2024 § BPA and phthalates reported in most foods as ng per serving levels § One nanogram is 0.00000001g § BPA levels far lower than in prior studies § Phthalates found at levels below safe limits in all cases § BPA found at levels below safety limits in all cases The FDA and other organizations have studied these matters for decades and found that exposure is not a threat.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00065.

Jessie P Buckley, Rachel T Palmieri, Jeanine M Matuszewski, Amy H Herring, Donna D Baird, Katherine E Hartmann & Jane A Hoppin. 2025. BPA and Phthalate Levels Consumer Reports 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00066.

M. I. González-Castro, M. F. Olea-Serrano, A. M. Rivas-Velasco, E. Medina-Rivero, Leandro G. Ordoñez-Acevedo & A. De León-Rodríguez. 2024. Consumer Reports Test Methodology for Bisphenols and Phthalates in Food 01-24.

Design: Occurrence, migration, source or exposure study.

Findings: 1306 relevant phthalates, and three phthalate replacement (2013): 45-58. compounds in various supermarket and fast food products; 2) compare the exposure estimates from the analyses to • Phthalates (BBzP, DBP, DiBP, DCHP, DEP, DEHP, DnHP, both the available tolerable daily intake levels and identified DMP, DiNP, and DNOP), and Phthalate Replacements levels of concerns in research for these chemicals; 3) use this (DEHA, DINCH, and DEHT) by Gas Chromatography information to inform the public about the occurrence and Mass Spectrometry (GC-MS/MS).

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00067.

Source author not identified in online metadata. 2024. Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report | Th.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00068.

Patricia A. Enneking. 2024. The Plastic Chemicals Hiding in Your Food - Consumer Reports BPA Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: Consumer-testing or media material; useful for occurrence/context but not a peer-reviewed epidemiologic or toxicology study.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00069.

Cosmetic Ingredient Review Expert Panel. 1985. Chapter 7 Final Report on the Safety Assessment of Dibutyl Phthalate, Dimethyl Phthalate, and Diethyl Phthalate 1985.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: phthalates are rapidly absorbed, metabolized, and excreted. Acute animal feeding studies indicate that these ingredients are nontoxic.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00070.

Po-Chin Huang, Kai-Wei Liao, Jung-Wei Chang, Shiou-Hui Chan & Ching-Chang Lee. 2018. Characterization of phthalates exposure and risk for cosmetics and perfume sales clerks.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Pre- and post-shift urine from cosmetics, perfume and clothing sales clerks was combined with workplace air measurements. Cosmetics/perfume clerks had higher urinary MEP, MBP and MEHP and higher air DEP/DEHP than comparison workers, supporting inhalation and dermal/product use as occupational exposure routes.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00071. DOI/link: 10.1016/j.envpol.2017.10.079

Megan Alfieri. 2025. CNN Reporters Chemical Wristbands Phthalate 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00072.

Rosa Lange, Nina Vogel, Phillipp Schmidt, Antje Gerofke, Mirjam Luijten, Wieneke Bil, Tiina Santonen, Greet Schoeters, Liese Gilles, Amrit K. Sakhi, Line S. Haug, Tina K. Jensen, Hanne Frederiksen, Holger M. Koch, Tamás Szigeti, Máté Szabados, Janja Snoj Tratnik, Darja Mazej, Catherine Gabriel, Dimosthenis Sarigiannis, Vazha Dzhezdzheia, Spyros Karakitsios, Loïc Rambaud, Margaux Riou, Gudrun Koppen, Adrian Covaci, Martin Zvonář, Pavel Piler, Jana Klánová, Lucia Fáblová, Denisa Richterová, Tina Kosjek, Agneta Runkel, Susana Pedraza-Díaz, Veerle Verheyen, Michiel Bastiaansen, Marta Esteban-López, Argelia Castaño & Marike Kolossa-Gehring. 2022. Cumulative risk assessment of five phthalates in European children and adolescents.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Koch i, Tamás Szigeti j, Máté Szabados j, Janja Snoj Tratnik k, Darja Mazej k, Catherine Gabriel l, m, Dimosthenis Sarigiannis l, m, n, Vazha Dzhezdzheia l, m, Spyros Karakitsios l, m, Loïc Rambaud o, Margaux Riou o, Gudrun Koppen d, Adrian Covaci p, Martin Zvonář q, Pavel Piler q, Jana Klánová q, Lucia Fáblová r, Denisa Richterová r, Tina Kosjek k, Agneta Runkel k, Susana Pedraza-Díaz s, Veerle Verheyen d, Michiel

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00073. DOI/link: 10.1016/j.ijheh.2022.114052

Jill L. Adelson & Hope E. Wilson. 2022. Debunking-Myths-about-Phthalates-in-Food.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: phthalates are present in manufacture, sale, and distribution of a food package to which consumer diets due to exposure ortho-phthalates have been intentionally added in any amount from plastic food wraps and greater than an incidental presence. containers, potentially causing adverse health effects.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00074.

Yangyang Wang, Wenhao Zhan, Yidan Liu, Shanshan Cheng, Chaosheng Zhang, Jianhua Ma & Runhua Chen. 2020. Di-n-octyl phthalate degradation by a halotolerant bacterial consortium LF and its application in soil.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A halotolerant bacterial consortium degraded DOP under optimized laboratory conditions, removing 96.33% of 2,000 mg/L DOP; in soil containing 100 mg/kg DOP, the highest reported removal was 89.3%. This is a biodegradation/remediation study, not a human-exposure study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00075. DOI/link: 10.1080/09593330.2020.1713903

Wei Chen, Ke Zhang & Jia Chen. 2017. Enhanced Degradation of di-n-octyl phthalate (DOP) by Phenyllobacterium ESF-17 isolated from waste water treatment plant.

Design: Occurrence, migration, source or exposure study.

Findings: In order to enhance the degradation of Di-n-octyl phthalate (DOP). One bacterial strain was isolated from activated sludge of waste water treatment plant(WWTP) using Di-n-octyl phthalate (DOP) as the sole source of carbon and energy.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00076.

Source author not identified in online metadata. 2022. DEHP Phthalate LD50 NOAEL tp9.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Lee Fig Toxicological Profile for Di(2-Ethylhexyl)Phthalate (DEHP) January 2022 DI(2-ETHYLHEXYL)PHTHALATE ii DISCLAIMER Use of trade names is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. DI(2-ETHYLHEXYL)PHTHALATE iii FOREWORD This toxicological profile is prepared in accordance with guidelines* developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Environmental Protection Agency (EPA).

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00077.

National Center for Biotechnology Information (PubChem). n.d.. DEHP Phthalate structure.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00078.

Janice A. Allotey, Meleah Boyle, Amir Sapkota, Linyan Zhu, Roger D. Peng, Mary A. Garza & Lesliam Quirós-Alcalá. 2021. Determinants of phthalate exposure among a U.S.-based group of Latino workers.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Phthalate exposure differed by worker category in a U.S.-based Latino worker study. Overall exposure was lower than in U.S. adults in the general population comparison used by the authors; bleach use and selected foods were associated with higher MBzP.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00079. DOI/link: 10.1016/j.ijheh.2021.113739

Xi-Feng Zhang, Teng Zhang, Liu Wang, Hong-Ying Zhang, Yong-De Chen, Xun-Si Qin, Yan-Min Feng, Yan-Ni Feng, Wei Shen & Lan Li. 2008. Diethylhexyl phthalate DEHP NOAEL.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00080.

U.S. Environmental Protection Agency. 2025. DINP Phthalate safe according to EPA 2025 LinkedIn.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00081.

Chenyang Bi, Xinke Wang, Hongwan Li, Xiaofeng Li & Ying Xu. 2021. Direct Transfer of Phthalate and Alternative Plasticizers from Indoor Source Products to Dust- Laboratory Measurements and Predictive Modeling.

Design: Occurrence, migration, source or exposure study.

Findings: Chamber experiments showed substantial direct transfer of plasticizers from source products to contacting dust. DEHP in dust rose to 12 times the pre-experiment level after two days of contact; a mechanistic model reproduced the transfer behavior and identified partitioning, source emission and dust-layer properties as key controls.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00082. DOI/link: 10.1021/acs.est.0c05131

Regine Nagorka, Wolfram Birmili, Jona Schulze & Jan Koschorreck. 2022. Diverging trends of plasticizers (phthalates and non-phthalates) in indoor and freshwater environments—why?.

Design: Occurrence, migration, source or exposure study.

Findings: Nineteen legacy and emerging plasticizers were evaluated in German house dust and suspended particulate matter from major rivers to compare indoor and freshwater trends following market substitution away from some low-molecular-weight phthalates.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00083. DOI/link: 10.1186/s12302-022-00620-4

Bethany R. Hannas, Christy S. Lambricht, Johnathan Furr, Kembra L. Howdeshell, Vickie S. Wilson & Leon E. Gray. 2011. Dose-Response Assessment of Fetal Testosterone Production and Gene Expression Levels in Rat Testes Following In Utero Exposure to Diethylhexyl Phthalate, Diisobutyl Phthalate, Diisooheptyl Phthalate, and Diisononyl Phthalate.

Design: Experimental animal toxicology or mechanistic study.

Findings: EPA, Office of Research and Development, NHEERL, RTD, Research Triangle 30 31 Park, North Carolina 32 * Toxicology Assessment Division, Reproductive Toxicology Branch, MD 72, National 33 Health and Environmental Effects Research Laboratory, US Environmental Protection 34 Agency, Research Triangle Park, North Carolina 27711 35 † National Institute of Environmental Health Sciences, National Toxicology Program, 36 37 P.O.

Risk relevance: Defines experimental hazard/mechanism; human risk requires comparison of species, route, dose and exposure window.

Key limitations: Animal model, dose and endpoint are study-specific; translation to human exposure requires toxicokinetic and dose-response context.

Catalogue ID: PHT-00084.

Source author not identified in online metadata. n.d.. Draft 3 PVC Pipe Phthalate Study Rebuttal Letter.

Design: Occurrence, migration, source or exposure study.

Findings: , Page 6842 First sentence: “ P hthalates are the most prevalent plasticizers in poly (vinyl chloride) (PVC), the most commonly used polymer for drinking water distribution pipes.” Last sentence: “ This study underscores the need for consideration of chemical structure in predicting phthalate reactivity and highlights potential exposure risks in drinking water infrastructure.” IIB.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00085.

Eastman Chemical Company. 2016. Eastman 168(TM) non-phthalate plasticizer SDS.

Design: Materials / plasticizer study or technical source.

Findings: SDSUS / EN / TSDSUS04 Version: 2.7 Revision Date: 01/15/2016 Initiator: 0001 / PRD 150000072819 SAFETY DATA SHEET SECTION 1: Identification of the substance/mixture and of the company/undertaking Product identifier Product name: Eastman 168(TM) non-phthalate plasticizer Product No.: EAN 975786. P231170K Synonyms, Trade Names: 23117-00 Relevant identified uses of the substance or mixture and uses advised against Identified uses: Plasticizer Uses advised against: None known.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00086.

Hyun Jung Koo & Byung Mu Lee. 2013. ESTIMATED EXPOSURE TO PHTHALATES IN COSMETICS AND RISK ASSESSMENT.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00087. DOI/link: 10.1080/15287390490513300

Lilia Patricia Bustamante-Montes, Víctor Hugo Borja-Aburto, María A. Hernández-Valero, María Magdalena García-Fábila, Patricia Borja-Bustamante, Rafael González-Álvarez & Germán Antonio Acosta-Gordillo. n.d.. Exposure to phthalates during pregnancy can affect a newborn's brain development, study finds.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00088.

Jiong Cao, Yumeng Shi, Mengqi Yan, Hongkai Zhu, Shucong Chen, Ke Xu, Lei Wang & Hongwen Sun. 2023. Face Mask - As a Source or Protector of Human Exposure to Microplastics and Phthalate Plasticizers?.

Design: Occurrence, migration, source or exposure study.

Findings: An experimental device simulated inhalation through five mask types to investigate whether masks could release or intercept microplastics and phthalate plasticizers. This was an exposure-model study, not evidence of disease in mask users.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00089. DOI/link: 10.3390/toxics11020087

Přemysl Mikula, Zdeňka Svobodová & Miriam Smutná. n.d.. FDA Defends Revoking Authorizations for Most Phthalates; Remaining Uses Under Review | Food Safety.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00090.

Britt E. Erickson. 2026. Phthalates in Food Packaging and Food Contact Applications | FDA.

Design: Occurrence, migration, source or exposure study.

Findings: FDA notes that ortho-phthalates historically had food-contact uses, mainly as plasticizers and in components such as adhesives, lubricants and sealants. Most prior authorizations were removed after industry abandonment; FDA continues evaluating remaining authorized uses and cumulative-risk grouping for selected phthalates.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00091.

Jonathan M. Acevedo, Linda G. Kahn, Kristyn A. Pierce, Vittorio Albergamo, Anna Carrasco, Robbie S.J. Manuel, Marissa Singer Rosenberg & Leonardo Trasande. 2025. Filling gaps in population estimates of phthalate exposure globally - A systematic review and meta-analysis of international biomonitoring data.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00092. DOI/link: 10.1016/j.ijheh.2025.114539

Luciana Gallo, Melina Paola Michlig, Maria Rosa Repetti, Agustina Donini, Adrian E. Rodriguez, Mariano Sironi & Marcela M. Uhart. 2026. First report of phthalate acid esters (plasticizers) in blubber of southern right whales (*Eubalaena australis*) from Península Valdés, Argentina.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalate acid esters (PAEs) are widely used plastic additives that have become ubiquitous contaminants in marine environments. Filter-feeding baleen whales may be exposed to these pollutants through water, prey or ingested plastic debris.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00093. DOI/link: 10.1007/s00300-026-03508-8

U.S. Environmental Protection Agency. 2020. EPA 2020 DOP casrn 117-81-7 di-ethylhexyl phthalate final scope HIGHLIGHTED p38.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: EPA Document# EPA-740-R-20-017 August 2020 United States Office of Chemical Safety and Environmental Protection Agency Pollution Prevention Final Scope of the Risk Evaluation for Di-ethylhexyl Phthalate (1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester) CASRN 117-81-7 August 2020.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00094.

U.S. Environmental Protection Agency. 2020. EPA 2020 DOP casrn 117-81-7 di-ethylhexyl phthalate final scope.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: EPA Document# EPA-740-R-20-017 August 2020 United States Office of Chemical Safety and Environmental Protection Agency Pollution Prevention Final Scope of the Risk Evaluation for Di-ethylhexyl Phthalate (1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester) CASRN 117-81-7 August 2020.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00095.

U.S. Environmental Protection Agency. 1974. archived-consumer-fact-sheet-on-di-2-ethylhexyl-phthalate.

Design: Occurrence, migration, source or exposure study.

Findings: Consumer Factsheet on: DI (2-ETHYLHEXYL) PHTHALATE List of Contaminants As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication: National Primary Drinking Water Regulations This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00096.

Source author not identified in online metadata. 2021. Misc-DE-JLD4.bates FOIL, PHENOLIC BOARDS, MISC HARDWARE, PP PADS, DOP, MIPS, JAYFLEX 251 DEHP (Jayflex Now Exxon DINP and DIDP).

Design: Materials / plasticizer study or technical source.

Findings: This is an archival commercial/invoice record rather than a scientific study. It is retained only as historical evidence of material purchasing/use; no toxicological or exposure finding is inferred from it.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00097.

Source author not identified in online metadata. 2021. Miscellaneous.bates DOP PLASTICIZER 44180 + 43360 + 46480 + 46620LB 40 000 LB HIGH HEAT PS HIPS HDPE LLDPE LDPE.

Design: Materials / plasticizer study or technical source.

Findings: The available record did not yield a reliable concise findings statement; consult the original publication or report.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00098.

Richard H. McKee, R. T. Przygoda, M. A. Chirdon, G. Engelhardt & M. Stanley. 2020. casrn 26761-40-0 di-isodecyl phthalate draft scope CERCLA DINP.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Regulatory scoping document; defines conditions of use and assessment scope rather than reporting a new experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00099.

Michael Bolgar, Jack Hubball, Joseph Groeger & Susan Meronek. n.d.. Jayflex 251 is DINP Plasticizer Exxon Handbook for the Chemical Analysis of Plastic and Polymer Additives p473.

Design: Materials / plasticizer study or technical source.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00100.

Source author not identified in online metadata. 2009. jayflex didp dinp ap enpdf.

Design: Materials / plasticizer study or technical source.

Findings: Jayflex™ plasticizers Jayflex™ plasticizers for advantaged performance Why Jayflex DINP and DIDP plasticizers? Safe and registered under REACH Key advantages Not only are Jayflex DINP and DIDP registered under REACH, but following • Track record of safe use extensive evaluations between 2009 and 2013 the EU concluded DINP and DIDP • High molecular weight are safe for use in all current applications with no further risks identified*.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00101.

Julia R. Barrett. 1999. Health on the Factory Floor - Occupational Phthalate Exposure Reduces Testosterone.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Environews Science Selections Man's Worst Friend? the target of TCDD; these results were expressed as a TCDD equivalent (TEQ). Animal studies indicate that 2,3,7,8-tetrachlorodibenzo-p-dioxin Serum TCDD levels increased significantly with age and con- (TCDD) and related compounds are reproductive and developmensusmption of eggs, fish, and chicken. Rising TEQ values were associatal toxicants, but effects of human ated with greater sperm concentration exposures are unclear.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00102.

Gursel Isci & Elif Dagdemir. 2024. Human health risk assessment of phthalate esters and antimony levels in beverages packaged in polyethylene terephthalate under different storage conditions.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00103. DOI/link: 10.1016/j.jfca.2023.105922

Susan S. Hoffman, Ziyin Tang, Anne Dunlop, Patricia A. Brennan, Thompson Huynh, Stephanie M. Eick, Dana B. Barr, Blake Rushing, Susan L. McRitchie, Susan Sumner, Kaitlin R. Taibl, Youran Tan, Parinya Panuwet, Grace E. Lee, Jasmin Eatman, Elizabeth J. Corwin, P. Barry Ryan, Dean P. Jones & Donghai Liang. 2024. Impact of prenatal phthalate exposure on newborn metabolome and infant neurodevelopment.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00104. DOI/link: 10.1038/s41467-025-57273-z

Haoming Yang, Lixin Wang, Yuchen Wang, Ziyan Meng, Qinghua Sun, Jianlong Fang, Yu Zhong & Zihao Huang. n.d.. Individual Inhalation Exposure to Phthalates and Their Associations with Anthropometric and Physiological Indices in Primary School Children in Jinan, China.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00105. DOI/link: 10.3390/buildings14113397

Yufeng Miao, Runhuai Wang, Chan Lu, Jinping Zhao & Qihong Deng. 2016. Lifetime cancer risk assessment for inhalation exposure to di(2-ethylhexyl) phthalate (DEHP).

Design: Materials / plasticizer study or technical source.

Findings: The plasticizer di(2-ethylhexyl) phthalate (DEHP) is

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00106. DOI/link: 10.1007/s11356-016-7797-4

Fatemeh Sadat Kashfi, Azam Mohammadi, Farzaneh Rostami, Arezou Savari, Gabriel E. De-la-Torre, Jörg Spitz, Reza Saeedi, Mohammadreza Kalantarhormozi, Akram Farhadi & Sina Dobaradaran. 2019. Microplastics and phthalate esters release from teabags into tea drink - occurrence, human exposure, and health risks.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00107. DOI/link: 10.21203/rs.3.rs-2858483/v1

Thomas P Ahern, Logan G Spector, Per Damkier, Buket Öztürk Esen, Sinna P Ulrichsen, Katrine Eriksen, Timothy L Lash, Henrik Toft Sørensen & Deirdre P Cronin-Fenton. 2022. Medication-Associated Phthalate Exposure and Childhood Cancer Incidence.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Spector, PhD,3 Per Damkier, MD, PhD,4,5 Buket Öztürk Esen, MS,6 Sinna P. Ulrichsen, MS,6 Katrine Eriksen, MS,6 Timothy L.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00108. DOI/link: 10.1093/jnci/djac045

Man Deng, Xueyi Liang, Bibai Du, Dan Luo, Hui Chen, Chunyou Zhu & Lixi Zeng. 2021. Metabolites of phthalates and phthalate alternatives.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This is a laboratory analytical procedure for measuring urinary metabolites of phthalates and phthalate alternatives by chromatographic mass spectrometry. It is a methods document, not a health-effects study.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00109.

Xueying Ye, Pingya Wang, Yichun Wu, Ying Zhou, Yingfei Sheng & Kejie Lao. 2020. Microplastic acts as a vector for contaminants the release behavior of dibutyl phthalate from polyvinyl chloride pipe fragments in water phase SpringerLink.

Design: Occurrence, migration, source or exposure study.

Findings: The pollution of contaminants brought by plastic fragments is worth paying attention in the study of microplastic.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00110. DOI/link: 10.1007/s11356-020-10136-0

Xueying Ye, Pingya Wang, Yichun Wu, Ying Zhou, Yingfei Sheng & Kejie Lao. 2020. Microplastic acts as a vector for contaminants- the release behavior of dibutyl phthalate from polyvinyl chloride pipe fragments in water phase.

Design: Occurrence, migration, source or exposure study.

Findings: The pollution of contaminants brought by plastic fragments is worth paying attention in the study of microplastic. The additives, like phthalates (PAEs), introduced during manufacture, are physically dispersed and can easily release into environment.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00111. DOI/link: 10.1007/s11356-020-10136-0

Qiong Luo, Ze-hua Liu, Hua Yin, Zhi Dang, Ping-xiao Wu, Neng-wu Zhu, Zhang Lin & Yu Liu. 2018. Reference 113 Migration and potential risk of trace phthalates in bottled water - A global situation.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00112. DOI/link: 10.1016/j.watres.2018.10.002

Qiong Luo, Ze-hua Liu, Hua Yin, Zhi Dang, Ping-xiao Wu, Neng-wu Zhu, Zhang Lin & Yu Liu. 2018. Migration and potential risk of trace phthalates in bottled water - A global situation.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00113. DOI/link: 10.1016/j.watres.2018.10.002

Olivier Songue Same, Pierre Nobosse, Guillaume Legrand Ngolong Ngea, Catherine Piveteau, Mohamed Lemdani, Richard Kamga & Benoit Deprez. n.d.. Migration Study of Phthalates from Non-Food Plastic Containers Used in Food Preservation.

Design: Occurrence, migration, source or exposure study.

Findings: Migration study of phthalates from non-food plastic containers used in food preservation iew Authors: SONGUE SAME Olivier1,3, 6, NOBOSSE Pierre2, NGOLONG NGEA Guillaume Legrand 4, PIVETEAU Catherine6,, LEMDANI Mohamed5, KAMGA Richard 3, *DEPREZ Benoit 7.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00114.

Takashi Iizuka, Ping Yin, Azna Zuberi, Stacy Kujawa, John S. Coon, Richelle D. Björvang, Pauliina Damdimopoulou, Diana C. Pacyga, Rita S. Strakovsky, Jodi A. Flaws & Serdar E. Bulun. 2022. Mono-(2-ethyl-5-hydroxyhexyl) phthalate promotes uterine leiomyoma cell survival through tryptophan-kynurenine-AHR pathway activation.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: RESEARCH ARTICLE | ENVIRONMENTAL CELL BIOLOGY SCIENCES OPEN ACCESS Mono-(2-ethyl-5-hydroxyhexyl) phthalate promotes uterine leiomyoma cell survival through tryptophan-kynurenine-AHR pathway activation Takashi Iizukaa, Ping Yina, Azna Zuberia, Stacy Kujawaa, John S.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00115. DOI/link: 10.1073/pnas

Georgios Giovanoulis, Thuy Bui, Fuchao Xu, Eleni Papadopoulou, Juan A. Padilla-Sanchez, Adrian Covaci, Line S. Haug, Anna Palm Cousins, Jörgen Magnér, Ian T. Cousins & Cynthia A. de Wit. 2018. Multi-pathway human exposure assessment of phthalate esters and DINCH corrections.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A multi-pathway adult exposure assessment concluded that diet was the major route for the measured phthalates and DINCH in the study population. The authors characterized overall risk as low for the participating adults and noted that dermal uptake required further study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00116. DOI/link: 10.1016/j.envint.2017.12.016

Georgios Giovanoulis, Thuy Bui, Fuchao Xu, Eleni Papadopoulou, Juan A. Padilla-Sanchez, Adrian Covaci, Line S. Haug, Anna Palm Cousins, Jörgen Magnér, Ian T. Cousins & Cynthia A. de Wit. 2018. Multi-pathway human exposure assessment of phthalate esters and DINCH.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A multi-pathway adult exposure assessment concluded that diet was the major route for the measured phthalates and DINCH in the study population. The authors characterized overall risk as low for the participating adults and noted that dermal uptake required further study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00117. DOI/link: 10.1016/j.envint.2017.12.016

Stephanie M. Engel, Heather B. Patisaul, Charlotte Brody, Russ Hauser, Ami R. Zota, Deborah H. Bennet, Maureen Swanson & Robin M. Whyatt. 2021. Neurotoxicity of Ortho-Phthalates - Recommendations for Critical Policy Reforms to Protect Brain Development in Children.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This policy/evidence review argues that longitudinal birth-cohort and experimental animal evidence supports concern about ortho-phthalates and child neurodevelopment. It is a synthesis and policy recommendation, not a new exposure experiment.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00118. DOI/link: 10.2105/AJPH.2020.306014

Source author not identified in online metadata. 2008. NOAEL Phthalates 5. What daily exposure levels to phthalates are considered safe.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: EUROPA > DG Health and Consumer Protection > Public Health Contact | Search Languages: English [en] Phthalates » Level 2 » Question 5 Source document: SCHER (2008) Summary & Details: GreenFacts (2009) About... What daily exposure levels to phthalates are considered safe? Current understanding about the effects of exposure to a specific phthalate on human health is mainly based on findings from animal studies.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00119.

Xiaohong Xue, Yaoming Su, Hailei Su, Dongping Fan, Hongliang Jia, Xiaoting Chu, Xiaoyang Song, Yuxian Liu, Feilong Li, Jingchuan Xue & Wenbin Liu. 2021. Occurrence of Phthalates in Bottled Drinks in the Chinese Market and Its Implications for Dietary Exposure.

Design: Occurrence, migration, source or exposure study.

Findings: Fifteen phthalates were measured in 105 bottled beverages in China. DEHP was the most frequently detected and most abundant analyte (up to 41,000 ng/L); DIBP and DBP were also common, and at least one phthalate was detected in every tested drink.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00120. DOI/link: 10.3390/molecules26196054

Fabiana Di Duca, Paolo Montuori, Elvira De Rosa, Immacolata Russo, Raffaele Palladino, Stefano Scippa, Giuseppe Dadà, Maria Triassi & Sergi Díez. 2025. Occurrence of volatile organic compounds (VOCs) and phthalate acid esters (PAEs) in recycled PET - Implications for food packaging materials.

Design: Occurrence, migration, source or exposure study.

Findings: VOCs and phthalic-acid esters were measured in virgin and recycled PET across recycling stages. Recycled PET showed higher non-intentionally added substance levels, and higher recycled content correlated with higher contaminant concentrations in the tested materials.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00121. DOI/link: 10.1016/j.chroma.2025.466433

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2021. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water in Tianjin, China FULL.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00122. DOI/link: 10.1016/j.jhazmat.2020.124891

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2021. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water in Tianjin, China.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00123. DOI/link: 10.1016/j.jhazmat.2020.124891

Julio Fernandez-Mendoza. 2024. Perfume ingredient can lead to heart issues and infertility, say doctors.

Design: Occurrence, migration, source or exposure study.

Findings: SECTIONS LOG IN Lifestyle Health Wellness Fitness Health Care Medicine Men's Health TRENDING NOW IN HEALTH How long you should Why so many people 'Rema be able to do a plank at are having strokes in habit every age, from 20s... cance HEALTH SHOP HEALTH DEALS Hidden ingredient Cannabis use among in your perfume seniors continues to rise — and so do th... health risks can lead to heart The NIRA Pro+ Laser problems, obesity — God's answer to Botox?

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00124.

Eunsol Heo, Zhijun Wu, Atsushi Matsuki, Ning Tang, Amgalan Natsagdorj, Minjung Song, Kyoung Soon Jang, Changhyuk Kim, Beelee Chua, Ahjeong Son & Jiye Lee. 2026. Particulate-bound phthalates as blind spot pollutant in air quality monitoring.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00125. DOI/link: 10.4491/eer.2025.479

Sihan ZHAO, Zhengmeng WANG, Hongxia DENG, Jiahui DUAN, Jinyi WANG & Shuhui LIU. n.d.. Perfume is a Major Source of Phthalates 3000px web.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00126.

Alexa Friedman, Barrett M. Welch, Alexander P. Keil, Michael S. Bloom, Joseph M. Braun, Jessie P. Buckley, Dana Dabelea, Pam Factor-Litvak, John D. Meeker, Karin B. Michels, Vasantha Padmanabhan, Anne P. Starling, Clarice R. Weinberg, Jenny Aalborg, Akram N. Alshawabkeh, Emily S. Barrett, Alexandra M. Binder, Asa Bradman, Nicole R. Bush, Antonia M. Calafat, David E. Cantonwine, Kate E. Christenbury, José F. Cordero, Stephanie M. Engel, Brenda Eskenazi, Kim G. Harley, Russ Hauser, Julie B. Herbstman, Nina Holland, Tamarra James-Todd, Anne Marie Z. Jukic, Bruce P. Lanphear, Thomas F. McElrath, Carmen Messerlian, Roger B. Newman, Ruby H.N. Nguyen, Katie M. O'Brien, Virginia A. Rauh, J.Bruce Redmon, David Q. Rich, Emma M. Rosen, Sheela Sathyanarayana, Rebecca J. Schmidt, Amy E. Sparks,

Shanna H. Swan, Christina Wang, Deborah J. Watkins, Barry Weinberger, Abby G. Wenzel, Allen J. Wilcox, Kimberly Yolton, Yu Zhang, Ami R. Zota & Kelly K. Ferguson. 2025. Periods of susceptibility for associations between phthalate exposure and preterm birth - Results from a pooled analysis of 16 US cohorts.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Buckley f,1, Dana Dabelea g,1, Pam Factor-Litvak h,1, John D. Michels j,1, Vasantha Padmanabhan k,1, Anne P.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00127. DOI/link: 10.1016/j.envint.2025.109392

Victor G. Mihucz & Gyula Záray. 2016. Occurrence of Antimony and Phthalate Esters in Polyethylene Terephthalate Bottled Drinking Water.

Design: Occurrence, migration, source or exposure study.

Findings: This review evaluated antimony and phthalate leaching from PET bottled water across storage time, heat/light exposure, pH and bottle volume. It concluded that reported concentrations normally did not exceed applicable health limits and highlighted phthalate cross-contamination as a major analytical concern.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00128. DOI/link: 10.1080/05704928.2015.1105243

Leila Arfaeina, Sina Dobaradaran, Farzaneh Nasrzadeh, Shiva Shamsi, Yousef Poureshgh & Hossein Arfaeina. 2020. Phthalate acid esters (PAEs) in highly acidic juice packaged in polyethylene terephthalate (PET) container - Occurrence, migration and estrogenic activity-associated risk assessment.

Design: Occurrence, migration, source or exposure study.

Findings: PAEs were measured in acidic beverages packaged in PET. DEHP was the major compound, with medians of 8.1, 10.5 and 9.8 µg/L in lemon juice, verjuice and vinegar; concentrations increased with storage time and temperature in the tested products.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00129. DOI/link: 10.1016/j.microc.2020.104719

Gursel Isci & Elif Dagdemir. 2026. Human health risk assessment of phthalate esters and antimony levels in beverages packaged in polyethylene terephthalate under different storage conditions.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00130. DOI/link: 10.1016/j.jfca.2023.105922

Victor G. Mihucz & Gyula Záray. 2016. Occurrence of Antimony and Phthalate Esters in Polyethylene Terephthalate Bottled Drinking Water.

Design: Occurrence, migration, source or exposure study.

Findings: This review evaluated antimony and phthalate leaching from PET bottled water across storage time, heat/light exposure, pH and bottle volume. It concluded that reported concentrations normally did not exceed applicable health limits and highlighted phthalate cross-contamination as a major analytical concern.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00131. DOI/link: 10.1080/05704928.2015.1105243

Leila Arfaeina, Sina Dobaradaran, Farzaneh Nasrzadeh, Shiva Shamsi, Yousef Poureshgh & Hossein Arfaeina. 2020. Phthalate acid esters (PAEs) in highly acidic juice packaged in polyethylene terephthalate (PET) container - Occurrence, migration and estrogenic activity-associated risk assessment.

Design: Occurrence, migration, source or exposure study.

Findings: PAEs were measured in acidic beverages packaged in PET. DEHP was the major compound, with medians of 8.1, 10.5 and 9.8 µg/L in lemon juice, verjuice and vinegar; concentrations increased with storage time and temperature in the tested products.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00132. **DOI/link:** 10.1016/j.microc.2020.104719

Marcos L. Dias & Alexandre P. F. Silva. n.d.. Transesterification reactions in triphenyl phosphite additivated-poly(ethylene terephthalate)-poly(ethylene naphthalate) blends 20.

Design: Materials / plasticizer study or technical source.

Findings: Transesterification Reactions in Triphenyl Phosphite Additivated-Poly(ethylene terephthalate)/Poly(ethylene naphthalate) Blends MARCOS L. Torqueprocessing time curves obtained during preparation of 75/25 PET/PEN blends containing TPP, showed a build-up profile followed by a fast decrease that was interpreted as chain extension between blend components and degradation due to phosphite residues formation, respectively.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00133.

Gursel Isci & Elif Dagdemir. 2022. Human health risk assessment of phthalate esters and antimony levels in beverages packaged in polyethylene terephthalate under different storage conditions.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00134. **DOI/link:** 10.1016/j.jfca.2023.105922

Victor G. Mihucz & Gyula Záray. 2016. Occurrence of Antimony and Phthalate Esters in Polyethylene Terephthalate Bottled Drinking Water.

Design: Occurrence, migration, source or exposure study.

Findings: This review evaluated antimony and phthalate leaching from PET bottled water across storage time, heat/light exposure, pH and bottle volume. It concluded that reported concentrations normally did not exceed applicable health limits and highlighted phthalate cross-contamination as a major analytical concern.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00135. **DOI/link:** 10.1080/05704928.2015.1105243

Leila Arfaeinia, Sina Dobaradaran, Farzaneh Nasrzadeh, Shiva Shamsi, Yousef Poureshgh & Hossein Arfaeinia. 2020. Phthalate acid esters (PAEs) in highly acidic juice packaged in polyethylene terephthalate (PET) container - Occurrence, migration and estrogenic activity-associated risk assessment.

Design: Occurrence, migration, source or exposure study.

Findings: PAEs were measured in acidic beverages packaged in PET. DEHP was the major compound, with medians of 8.1, 10.5 and 9.8 µg/L in lemon juice, verjuice and vinegar; concentrations increased with storage time and temperature in the tested products.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00136. **DOI/link:** 10.1016/j.microc.2020.104719

Jingwei Liu, Junchao Shi, Rebecca Hernandez, Xiuchun Li, Pranav Konchadi, Yuma Miyake, Qi Chen, Tong Zhou & Changcheng Zhou. 2023. Paternal phthalate exposure-elicited offspring metabolic disorders are associated with altered sperm small RNAs in mice.

Design: Experimental animal toxicology or mechanistic study.

Findings: In mice, paternal DCHP exposure produced insulin resistance and altered insulin signaling/transcriptomes in F1 offspring and changed sperm small-RNA profiles; the authors also reported transgenerational effects in F2. This is an experimental mouse study and does not establish effects at ordinary human exposure.

Risk relevance: Defines experimental hazard/mechanism; human risk requires comparison of species, route, dose and exposure window.

Key limitations: Animal model, dose and endpoint are study-specific; translation to human exposure requires toxicokinetic and dose-response context.

Catalogue ID: PHT-00137. DOI/link: 10.1016/j.envint.2023.107769

Lisa Fay Coutley. 2018. Plastic exposure damages metabolic function for two generations, find researchers.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00138.

Source author not identified in online metadata. 1992. ToxicityReviewOfDCHP.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: identification, that is, a review of the available toxicity data for the chemical under consideration and a determination of whether the chemical is considered “toxic”. If it is concluded that a substance is “toxic” due to chronic toxicity, then a quantitative assessment of exposure and risk is performed to evaluate whether the chemical may be considered a “hazardous substance”. This memo represents the first step in the risk assessment process; that is, the hazard identification step.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization’s assessment framework.

Catalogue ID: PHT-00139.

Aristidis M. Tsatsakis, Ioanna Katsikantami, Olga-Ioanna Kalantzi, Çiğdem Sevim, Konstantinos Tsarouhas, Dimosthenis Sarigiannis, Manolis N. Tzatzarakis & Apostolos K. Rizos. n.d.. Phthalates - Health Effects, Detection and Exposure Prevention.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: This is an edited technical/scientific volume covering phthalate toxicology, analytical detection and exposure-prevention topics. It is a secondary reference source rather than a single experimental study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00140.

Lariah Edwards, Nathan L. McCray, Brianna N. VanNoy, Alice Yau, Ruth J. Geller, Gary Adamkiewicz & Ami R. Zota. 2022. Phthalate and novel plasticizer concentrations in food items from U.S. fast food chains - a preliminary analysis.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates and replacement plasticizers were measured in foods from U.S. fast-food chains. The study documented the presence of legacy and replacement plasticizers in sampled foods; it was a preliminary occurrence study and did not measure health outcomes.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00141. DOI/link: 10.1038/s41370-021-00392-8

Hanno C. Erythropel, Milan Maric, Jim A. Nicell, Richard L. Leask & Viviane Yargeau. 2014. Leaching of the plasticizer di(2-ethylhexyl)phthalate (DEHP) from plastic containers and the question of human exposure.

Design: Occurrence, migration, source or exposure study.

Findings: Di(2-ethylhexyl)phthalate (DEHP) is a widely used of DEHP exposure is still evolving.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00142. DOI/link: 10.1007/s00253-014-6183-8

Xiangqin Xu, Gang Zhou, Kun Lei, Gerald A. LeBlanc & Lihui An. 2019. Phthalate Esters and Their Potential Risk in PET Bottled Water Stored under Common Conditions.

Design: Occurrence, migration, source or exposure study.

Findings: A great deal of attention has been paid lately to release of phthalate esters (PAEs) from polyethylene terephthalate (PET) bottles into PET bottled drinking water due to their potential endo

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00143. DOI/link: 10.3390/ijerph17010141

Branislav Kolena, Ida Petrovicova, Tomas Pilka, Zuzana Pucherova, Michal Munk, Bohumil Matula, Viera Vankova, Peter Petlus, Zita Jenisova, Zdenka Rozova, Sona Wimmerova & Tomas Trnovec. 2014. Phthalate Exposure and Health-Related Outcomes in Specific Types of Work Environment.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00144. DOI/link: 10.3390/ijerph110605628

Evangelia E. Antoniou & Rainer Otter. 2024. Phthalate Exposure and Neurotoxicity in Children - A Systematic Review and Meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Antoniou 1* and Rainer Otter 2 1 MetaAnalyses.com, Hees, Belgium, 2Industrial Petrochemicals Europe, BASF SE, Ludwigshafen, Germany Objectives: This systematic review aims to assess the relationship between prenatal and childhood exposure to phthalates and neurodevelopmental outcomes, identifying periods of heightened susceptibility. Data sources considered studies examining repeated phthalate exposure during pregnancy and childhood on neurodevelopment.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00145. DOI/link: 10.3389/ijph.2024.1606802

Raymond M. David. n.d.. Phthalate exposure Bloomberg.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00146.

Jiufeng Li, Wei Xia, Chuansha Wu, Hongzhi Zhao, Yanqiu Zhou, Juntong Wei, Fenfen Ji, Hemi Luan, Shunqing Xu & Zongwei Cai. n.d.. Phthalate Exposure Decreased Over Time.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00147.

Victoria M. Pak, Linda A. McCauley & Jennifer Pinto-Martin. 2011. Phthalate Exposures and Human Health Concerns A Review and Implications for Practice.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review states that high phthalate exposures have been associated with adverse male fetal reproductive development and that animal studies consistently demonstrate reproductive effects, while noting that additional human epidemiology is needed to characterize human risk.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00148. DOI/link: 10.3928/08910162-20110426-01

Jin Qin, Ruihua Dong, Min Wu, Yaqun Yuan, Han Zhang, Pai Meng, Meiru Zhang, Jingsi Chen, Shuguang Li & Bo Chen. 2025. Phthalate Exposure Low Decreasing and From Personal Care Products 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00149.

Sonia Hernández-Díaz, Yung-Cheng Su, Allen A. Mitchell, Katherine E. Kelley, Antonia M. Calafat & Russ Hauser. 2014. Medications as a Potential Source of Exposure to Phthalates among Women of Childbearing Age.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00150. DOI/link: 10.1016/j.reprotox.2013.01.001

Sonia Hernández-Díaz, Allen A. Mitchell, Katherine E. Kelley, Antonia M. Calafat & Russ Hauser. 2004. Medications as a potential source of exposure to phthalates in the U.S. population.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Research Medications as a Potential Source of Exposure to Phthalates in the U.S.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00151. DOI/link: 10.1289/ehp.11766

Thomas P Ahern, Logan G Spector, Per Damkier, Buket Öztürk Esen, Sinna P Ulrichsen, Katrine Eriksen, Timothy L Lash, Henrik Toft Sørensen & Deirdre P Cronin-Fenton. 2022. Medication–Associated Phthalate Exposure and Childhood Cancer Incidence.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Ulrichsen, MS,6 Katrine Eriksen, MS,6 Timothy L. Lash, DSc, MPH,6,7 6 Henrik Toft Sørensen, MD, PhD, DMSc, Deirdre P.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00152. DOI/link: 10.1093/jnci/djac045

Elizabeth D. Kantor & Megan E. Romano. 2024. Phthalate Exposure From Prescription Medications and Breast Cancer Risk.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: editorial Phthalate Exposure From Prescription Medications and Breast Cancer Risk Elizabeth D. Romano, PhD, MPH2,3 In the article that accompanies this editorial, Ahern misclassification is possible because of exposure et al1 used a linkage of Danish registries to evaluate the from other sources (such as vinyl flooring in homes association between exposure to phthalates via preor use of personal care products), this approach is scription drugs and breast cancer risk.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Kellyn S. Betts. 2004. Phthalates in Prescription Drugs - Some Medications Deliver High Doses.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Environews | Science Selections Phthalates in Prescription Drugs samples were tested for phthalate metabolites and participants were asked about their use of prescription medications.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00154.

Michael A. Babich, Charles Bevington & Matthew A. Dreyfus. 1998. Phthalate migration from soft PVC toys and child-care articles.

Design: Occurrence, migration, source or exposure study.

Findings: EU Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) Phthalate migration from soft PVC toys and child-care articles Opinion expressed at the CSTEE third plenary meeting Brussels, 24 April 1998 1.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00155.

Yasser Vasseghian, Monireh Alimohamadi, Elena-Niculina Dragoi & Christian Sonne. 2023. A global meta-analysis of phthalate esters in drinking water sources and associated health risks.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This global meta-analysis compiled phthalate concentrations in drinking-water sources and performed health-risk calculations. It reported substantial geographic and source-type variability; the authors' risk estimates depend on the included concentration data and exposure assumptions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00156. DOI/link: 10.1016/j.scitotenv.2023.166846

Yu Wang, Hongkai Zhu & Kurunthachalam Kannan. 2019. A Review of Biomonitoring of Phthalate Exposures.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes human biomonitoring approaches and urinary phthalate metabolite data, emphasizing that urinary metabolites are the standard markers for recent exposure and that interpretation depends on timing, metabolism and study design.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00157. DOI/link: 10.3390/toxics7020021

S Jobling, T Reynolds, R White, M G Parker & J P Sumpter. 1995. A variety of environmentally persistent chemicals including some phthalate plasticizers are weakly estrogenic.

Design: Materials / plasticizer study or technical source.

Findings: In vitro estrogen-receptor assays found BBP and DBP to be estrogenic but less potent than octylphenol. The authors explicitly noted that in-vivo studies were needed before drawing conclusions about human disease relevance.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00158. DOI/link: 10.1289/ehp.95103582

Qian Xu, Xueyan Yin, Min Wang, Haifeng Wang, Niping Zhang, Yanyan Shen, Shi Xu, Ling Zhang & Zhongze Gu. 2010. Analysis of Phthalate Migration from Plastic Containers to Packaged Cooking Oil and Mineral Water.

Design: Occurrence, migration, source or exposure study.

Findings: The study evaluated phthalate migration from commercial plastic containers into cooking oil and mineral water under different temperatures, contact times and static/dynamic conditions. A liquid-chromatographic method with solid-phase extraction was used; migration depended on the food matrix and storage conditions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00159. DOI/link: 10.1021/jf102821h

U.S. Environmental Protection Agency. 2026. archived-consumer-fact-sheet-on-di-2-ethylhexyl-phthalate.

Design: Occurrence, migration, source or exposure study.

Findings: Consumer Factsheet on: DI (2-ETHYLHEXYL) PHTHALATE List of Contaminants As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication: National Primary Drinking Water Regulations This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00160.

Meng Meng, Yao Yang, Liang Song, Jian Peng, Shenglong Li, Zhengjun Gao, Youquan Bu & Junwei Gao. 2024. Association between urinary phthalates and phthalate metabolites and cancer risk - A systematic review and meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: A meta-analysis of 11 studies (3,101 cancer cases and 6,858 controls) reported associations between several urinary phthalate measures (including MEHHP, MECPP, DBP and MBzP) and cancer risk. The evidence is observational and heterogeneous, so the pooled associations do not by themselves establish causation.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00161. DOI/link: 10.1016/j.heliyon.2024.e29684

Germaine M. Buck Louis, Melissa M. Smarr, Liping Sun, Zhen Chen, Masato Honda, Wei Wang, Rajendiran Karthikraj, Jennifer Weck & Kurunthachalam Kannan. 2018. Endocrine Disrupting Chemicals in Seminal Plasma and Couple Fecundity.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five classes of non-persistent endocrine-disrupting chemicals were measured in seminal plasma from 339 male partners in a prospective time-to-pregnancy study. Concentrations were lower than in urine; associations with fecundability were generally bidirectional and not statistically significant, with a nonsignificant signal for benzophenones.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00162. DOI/link: 10.1016/j.envres.2018.01.028

Germaine M. Buck Louis, Melissa M. Smarr, Liping Sun, Zhen Chen, Masato Honda, Wei Wang, Rajendiran Karthikraj, Jennifer Weck & Kurunthachalam Kannan. 2018. Endocrine Disrupting Chemicals in Seminal Plasma and Couple Fecundity.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five classes of non-persistent endocrine-disrupting chemicals were measured in seminal plasma from 339 male partners in a prospective time-to-pregnancy study. Concentrations were lower than in urine; associations with fecundability were generally bidirectional and not statistically significant, with a nonsignificant signal for benzophenones.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00163. DOI/link: 10.1016/j.envres.2018.01.028

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2026. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00164.

Genoa R Warner & Jodi A Flaws. 2026. Bisphenol A and Phthalates - How Environmental Chemicals Are Reshaping Toxicology.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00165. DOI/link: 10.1093/toxsci/kfy232

Haiyan An, Henan Yu, Yibo Wei, Feng Liu & Jinshao Ye. 2026. [Potential sources of phthalates and bisphenol A and their significance in the development of metabolic diseases] - PubMed.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Nowadays, there is increasing evidence showing that the development of the metabolic syndrome combining obesity, type 2 diabetes mellitus, arterial hypertension and dyslipidemia involves except of traditional risk factors (overnutrition, lack of physical activity, genetic predisposition) also the effect of environmental organic substances called organic pollut

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00166.

Joe M Braun & Russ Hauser. 2026. Phthalates and bisphenol A (BPA).

Design: Materials / plasticizer study or technical source.

Findings: Phthalates are man-made chemicals that give flexibility foods and high fat dairy and meats are particularly high to soft plastics and polyvinyl chloride (PVC) products, in phthalates.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00167. DOI/link: 10.1097/MOP.0b013e3283445675

Haiyan An, Henan Yu, Yibo Wei, Feng Liu & Jinshao Ye. 2026. [Potential sources of phthalates and bisphenol A and their significance in the development of metabolic diseases] - PubMed.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Nowadays, there is increasing evidence showing that the development of the metabolic syndrome combining obesity, type 2 diabetes mellitus, arterial hypertension and dyslipidemia involves except of traditional risk factors (overnutrition, lack of physical activity, genetic predisposition) also the effect of environmental organic substances called organic pollut

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00168.

Joe M Braun & Russ Hauser. 2026. Phthalates and bisphenol A (BPA).

Design: Materials / plasticizer study or technical source.

Findings: Phthalates are man-made chemicals that give flexibility foods and high fat dairy and meats are particularly high to soft plastics and polyvinyl chloride (PVC) products, in phthalates.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00169. DOI/link: 10.1097/MOP.0b013e3283445675

Bloomberg News. 2026. Bloomberg Paid Phthalate Claims 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00170.

Juliana FW. Cohen, Scott Richardson, William W. March, Wendi Gosliner & Russ Hauser. 2026. BPA & Phthalates 2024 web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00171.

Juliana FW. Cohen, Scott Richardson, William W. March, Wendi Gosliner & Russ Hauser. 2026. BPA & Phthalates 2024 web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: BPA & PHTHALATES Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report - Epoch Times January 6th 2024 § BPA and phthalates reported in most foods as ng per serving levels § One nanogram is 0.000000001g § BPA levels far lower than in prior studies § Phthalates found at levels below safe limits in all cases § BPA found at levels below safety limits in all cases The FDA and other organizations have studied these matters for decades and found that exposure is not a threat.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00172.

Consumer Reports. 2026. BPA & Phthalates Consumer Reports 2024.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00173.

Consumer Reports. 2026. BPA & Phthalates Consumer Reports 2024.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: BPA & PHTHALATES Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report - Epoch Times January 6th 2024 § BPA and phthalates reported in most foods as ng per serving levels § One nanogram is 0.000000001g § BPA levels far lower than in prior studies § Phthalates found at levels below safe limits in all cases § BPA found at levels below safety limits in all cases The FDA and other organizations have studied these matters for decades and found that exposure is not a threat.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00174.

Hanne Frederiksen, Ole Nielsen, Holger M. Koch, Niels E. Skakkebaek, Anders Juul, Niels Jørgensen & Anna-Maria Andersson. 2020. Changes in urinary excretion of phthalates, phthalate substitutes, bisphenols and other polychlorinated substances. DANISH ABSTRACT.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Repeated urine samples from young Danish men were used to compare biomarker excretion of legacy phthalates, replacement plasticizers, bisphenols and other phenolic/chlorinated substances from 2009 through 2017. The study was designed to characterize temporal exposure trends, not clinical effects.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00175. DOI/link: 10.1016/j.ijheh.2019.10.002

Paul J. Liroy, Chris Gennings, Russ Hauser, Holger M. Koch & Andreas Kortenkamp. 2026. Changing Trends in Phthalate Exposures.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00176. DOI/link: 10.1289/ehp.1408629

Shanna H. Swan. 2008. Environmental phthalate exposure in relation to reproductive outcomes and other health endpoints in humans.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: This review summarized human phthalate studies across prenatal, neonatal, childhood and adult exposure. It reported statistically significant associations for metabolites of several phthalates, while emphasizing that much of the human evidence, particularly in males, was being interpreted in relation to anti-androgenic effects established in experimental studies.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00177. DOI/link: 10.1016/j.envres.2008.08.007

Wei Bao, Buyun Liu, Shuang Rong, Susie Y. Dai, Leonardo Trasande & Hans-Joachim Lehmler. 2026. Association Between Bisphenol A Exposure and Risk of All-Cause and Cause-Specific Mortality in US Adults.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: However, prospective studies regarding the association of BPA exposure mortality?

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00178. DOI/link: 10.1001/jamanetworkopen.2020.11620

Britt E. Erickson. 2026. Phthalates | FDA.

Design: Occurrence, migration, source or exposure study.

Findings: FDA states that phthalates have been used in cosmetics as plasticizers, solvents and fragrance stabilizers; historically DBP, DMP and DEP were principal cosmetic phthalates. FDA states that it does not currently have evidence that phthalates as used in cosmetics pose a safety risk and continues market surveillance.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00179.

Karolina Mikołajewska, Joanna Stragierowicz & Jolanta Gromadzińska. 2026. Bisphenol A - Application, sources of exposure and potential risks in infants, children and pregnant women.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Bisphenol A (BPA) is used in the chemical industry as a monomer in the production of plastics. Extensive use of BPA in manufacturing products that come in contact with food increases the risk of exposure to this compound, mainly through the digestive tract. Literature data indicate that exposure to bisphenol A even at low doses may result in adverse health effects.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00180. DOI/link: 10.13075/ijomeh.1896.00343

Tony Boyle & Fiona Charlton. 2026. Bisphenol A: Hazards and sources VERY GOOD FAIR NO RISK.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00181.

Meghan R. Bernier & Laura N. Vandenberg. 2017. Handling of thermal paper - Implications for dermal exposure to bisphenol A and its alternatives.

Design: Materials / plasticizer study or technical source.

Findings: Direct observation of 698 cafeteria patrons found thermal-paper handling times and contact areas often exceeded assumptions used in regulatory exposure models. Modelled BPA intake based on observed behavior was similar to or higher than prior regulatory dermal estimates, depending on transfer assumptions.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00182. DOI/link: 10.1371/journal.pone.0178449

T CONNOR, J THEISS, H HANNA, D MONTEITH & T MATNEY. 2026. BPA and Phthalates Chemicals found in our homes Information and Tips.

Design: Materials / plasticizer study or technical source.

Findings: Phthalates are used to make soft, flexible plastics such as PVC ("vinyl") • Use less canned and processed foods. They are also used to make fragrances found when possible. • Store food and drinks in non-plastic containers, such as glass, stainless steel, or ceramic.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00183.

Candace Rowell, Nora Kuiper & Hugues Preud'Homme. 2016. Is container type the biggest predictor of trace element and BPA leaching from drinking water bottles?.

Design: Occurrence, migration, source or exposure study.

Findings: The study evaluated 79 trace elements and BPA leaching from drinking-water bottles. Antimony leaching depended strongly on water quality, while container type became an important predictor under heat/UV conditions; the paper emphasizes that leaching depends on both material and exposure conditions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00184. DOI/link: 10.1016/j.foodchem.2016.01.109

Hoa H. Le, Emily M. Carlson, Jason P. Chua & Scott M. Belcher. 2026. Bisphenol A is released from polycarbonate drinking bottles and mimics the neurotoxic actions of estrogen in developing cerebellar neurons.

Design: Occurrence, migration, source or exposure study.

Findings: The impact of endocrine disrupting chemical (EDC) exposure on human health is receiving increasingly focused attention.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00185.

Hoa H. Le, Emily M. Carlson, Jason P. Chua & Scott M. Belcher. 2026. Bisphenol A is released from polycarbonate drinking bottles and mimics the neurotoxic actions of estrogen in developing cerebellar neurons.

Design: Occurrence, migration, source or exposure study.

Findings: The impact of endocrine disrupting chemical (EDC) exposure on human health is receiving increasingly focused attention.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00186.

Jenny L. Carwile, Henry T. Luu, Laura S. Bassett, Daniel A. Driscoll, Caterina Yuan, Jennifer Y. Chang, Xiaoyun Ye, Antonia M. Calafat & Karin B. Michels. 2026. Polycarbonate Bottle Use and Urinary Bisphenol A Concentrations.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Research Polycarbonate Bottle Use and Urinary Bisphenol A Concentrations Jenny L.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00187. DOI/link: 10.1289/ehp.0900604

Jenny L. Carwile, Henry T. Luu, Laura S. Bassett, Daniel A. Driscoll, Caterina Yuan, Jennifer Y. Chang, Xiaoyun Ye, Antonia M. Calafat & Karin B. Michels. 2026. Polycarbonate Bottle Use and Urinary Bisphenol A Concentrations.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Research Polycarbonate Bottle Use and Urinary Bisphenol A Concentrations Jenny L.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00188. DOI/link: 10.1289/ehp.0900604

Scott M Arnold, Kathryn E Clark, Charles A Staples, Gary M Klecka, Steve S Dimond, Norbert Caspers & Steven G Hentges. 2013. Relevance of drinking water as a source of human exposure to bisphenol A.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: A review of 65 studies evaluated BPA in source and drinking waters. Measurements below detection limits were common, and the authors concluded that drinking water was a minor contributor to total BPA exposure under the reviewed conditions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00189. DOI/link: 10.1038/jes.2012.66

Xue Hui Cao & Shu Juan Ji. 2026. Migration of bisphenol A from polycarbonate plastic of different qualities Danish EPA.

Design: Occurrence, migration, source or exposure study.

Findings: Migration of bisphenol A from polycarbonate plastic of different qualities Environmental project No.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00190.

Gwen Vardigans. 2026. bpa action plan.

Design: Occurrence, migration, source or exposure study.

Findings: Environmental Protection Agency 3/29/2010 Bisphenol A Action Plan (CASRN 80-05-7) [CA Index Name: Phenol, 4,4'-(1-methylethylidene)bis-] I. Humans appear to be exposed primarily through food packaging uses of products manufactured using BPA, although those products account for less than 5% of the BPA used in this country.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00191.

Mercè Garí, Holger M. Koch, Claudia Pälme, Agnieszka Jankowska, Ewelina Wesółowska, Wojciech Hanke, Dennis Nowak, Stephan Bose-O'Reilly & Kinga Polańska. 2019. Determinants of phthalate exposure and risk assessment in children from Poland.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In Polish children, the most prevalent urinary biomarkers included MEP, MiBP, MnBP, summed DEHP metabolites and summed DiNP metabolites. Body mass index, place of residence and breastfeeding were among determinants associated with biomarker levels; upper-percentile exposures for some phthalates exceeded the study's health-based screening values.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00192. DOI/link: 10.1016/j.envint.2019.04.011

J. E. Biles, T. P. McNeal, T. H. Begley & H. C. Hollifield. 2026. Determination of Bisphenol-A in Reusable Polycarbonate Food-Contact Plastics and Migration to Food-Simulating Liquids.

Design: Occurrence, migration, source or exposure study.

Findings: 1997, 45, 3541–3544 3541 Determination of Bisphenol-A in Reusable Polycarbonate Food-Contact Plastics and Migration to Food-Simulating Liquids J.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00193.

Nicholas C. Wu & Frank Seebacher. 2020. Effect of the plastic pollutant bisphenol A on the biology of aquatic organisms - A meta analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: A meta-analysis of aquatic-organism studies found overall adverse effects of BPA across several biological traits, with early life stages especially sensitive. The evidence concerns aquatic organisms and does not directly quantify human risk.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00194. DOI/link: 10.1111/gcb.15127

Hongyu Luo, Guangyu Sun, Yanping shi, Yong Shen & Kai Xu. 2014. Evaluation of the Di(2-ethylhexyl)phthalate released from polyvinyl chloride medical devices that contact blood.

Design: Occurrence, migration, source or exposure study.

Findings: The study validated GC-MS measurement of DEHP released from blood-contacting PVC medical devices and compared an ethano/water extraction medium with whole blood. Reported recoveries were approximately 90-102%, supporting the method as a screening approach for device DEHP release.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00195. DOI/link: 10.1186/2193-1801-3-58

Z. Al Harraq, C. Croera, J. M. Barat Baviera, C. Bolognesi, A. Chesson, P.S. Cocconcelli, R. Crebelli, D.M. Gott, K. Grob, C. Lambré, E. Lampi, M. Mengelers, A. Mortensen, G. Rivière, V. Silano, I.-L. Steffensen, C. Tlustos, L. Vernis, H. Zorn, M. Batke, M. Bignami, E. Corsini, R. FitzGerald, U. Gundert-Remy, T. Halldorsson, A. Hart, H. Schroeder, E. Scanziani, B. Ulbrich, E. Ntzani, D. Waalkens-Berendsen, D. Woelfle, K. Baert, A.F. Castoldi, M. Carfi & H. Van Loveren. 2026. Bisphenol A (BPA): Use in Food Contact Application | FDA.

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00196.

Cosmetic Ingredient Review Expert Panel. 1985. Final Report on Safety Assessment of Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: The Cosmetic Ingredient Review assessment evaluated DBP, DMP and DEP used in cosmetics. The report described rapid absorption/metabolism/excretion and generally low acute, subchronic and chronic toxicity in the animal data available at that time; it is a historical safety assessment and predates much of the modern developmental-toxicity literature.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00197.

Padmaja Kumari & Ashok Kumar Thakur. 2026. Health risk of exposure to Bisphenol A (BPA).

Design: Materials / plasticizer study or technical source.

Findings: Bisphenol A (BPA) belongs to chemicals that are produced in large quantities worldwide. It is commonly used as monomer in polycarbonate synthesis, plasticizer in the production of epoxy resins, as well as an additive for the elimination of surplus of hydrochloric acid during the polyvinyl chloride (PVC) production.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00198.

Tinne Geens, Dominique Aerts, Carl Berthot, Jean-Pierre Bourguignon, Leo Goeyens, Philippe Lecomte, Guy Maghuin-Rogister, Anne-Madeleine Pironnet, Luc Pussemier, Marie-Louise Scippo, Joris Van Loco & Adrian Covaci. 2012. A review of dietary and non-dietary exposure to bisphenol-A.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review compared dietary and non-dietary BPA exposure sources. Based on the reviewed datasets, food-related exposure generally exceeded non-food sources by at least an order of magnitude for most studied groups.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00199. DOI/link: 10.1016/j.fct.2012.07.059

Tinne Geens, Dominique Aerts, Carl Berthot, Jean-Pierre Bourguignon, Leo Goeyens, Philippe Lecomte, Guy Maghuin-Rogister, Anne-Madeleine Pironnet, Luc Pussemier, Marie-Louise Scippo, Joris Van Loco & Adrian Covaci. 2012. A review of dietary and non-dietary exposure to bisphenol-A.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review compared dietary and non-dietary BPA exposure sources. Based on the reviewed datasets, food-related exposure generally exceeded non-food sources by at least an order of magnitude for most studied groups.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00200. DOI/link: 10.1016/j.fct.2012.07.059

Department of Chemical Engineering, Bangladesh University of Engineering & Technology, Dhaka-1000, Bangladesh, Farrhin Nowshad, Md N. Islam & Mohidus S. Khan. 2026. Analysis of the Concentration and Formation Behavior of Naturally Occurring Formaldehyde Content in Food.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: In recent years, in spite of being legally nervous system, kidney and liver, and may cause asthma, prohibited, formaldehyde is reported to be widely used as a pulmonary damage and even cancer [5], [11]-[13].

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00201. DOI/link: 10.18178/ijfe.4.1.71-75

Robert P. Kusy & John Q. Whitley. 2026. Degradation of plastic polyoxymethylene brackets and the subsequent release of toxic formaldehyde - PubMed.

Design: Occurrence, migration, source or exposure study.

Findings: Follow NLM Purpose: Heat, acids, alkalis, oxygen, abrasion, enzymes, and radiation are all viable mechanisms for the chemical breakdown of polyoxymethylene (POM), a plastic material used in some esthetic orthodontic brackets.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00202. DOI/link: 10.1016/j.ajodo.2004.01.023

Elena Spinei, Martin Tiefengraber, Moritz Müller, Manuel Gebetsberger, Alexander Cede, Luke Valin, James Szykman, Andrew Whitehill, Alexander Kotsakis, Fernando Santos, Nader Abbuhasan, Xiaoyi Zhao, Vitali Fioletov, Sum Chi Lee & Robert Swap. 2026. Effect of Polyoxymethylene (POM-H Delrin) offgassing within Pandora head sensor on direct sun and multi-axis formaldehyde column measurements in 2016 - 2019.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Discussion started: 3 August 2020 c Author(s) 2020.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00203. DOI/link: 10.5194/amt-2020-158

Farrhin Nowshad, Md. Nazibul Islam & Mohidus Samad Khan. 2026. Foods Known to Contain Naturally Occurring Formaldehyde 2.

Design: Occurrence, migration, source or exposure study.

Findings: Foods Known to Contain Naturally Occurring Formaldehyde I. Fruits & Vegetables Food type Level (mg/kg) Apple 6.3 – 22.3 Apricot 9.5 Banana 16.3 Beetroot 35 Bulb vegetables (e.g. onion) 11.0 Cabbage 5.3 Carrot 6.7 – 10 Cauliflower 26.9 Cucumber 2.3 – 3.7 Grape 22.4 Green Onion 13.3 – 26.3 Kohlrabi 31 Pear 38.7 – 60 Plum 11.2 Potato 19.5 Spinach 3.3 – 7.3 Tomato 5.7 – 13.3 Watermelon 9.2 White Radish 3.7 – 4.4 Shiitake mushroom (dried) 100 – 406 Shiitake mushroom (raw) 6 – 54.4 II.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00204.

Source author not identified in online metadata. 2026. Formaldehyde | Uses, Benefits, and Chemical Safety Facts.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: All life forms – bacteria, plants, fish, animals and humans – naturally produce formaldehyde as part of cell metabolism. Formaldehyde is perhaps best known for its preservative and anti-bacterial properties, but formaldehyde-based chemistry is used to make a wide range of value-added products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00205.

European Food Safety Authority. 2014. Formaldehyde-Occurs-Naturally-and-Is-All-Around-Us.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: EFSA compared endogenous formaldehyde turnover in humans with exogenous contributions from food as part of its safety assessment work. This is a formaldehyde assessment and is outside the core phthalate evidence base.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00206. DOI/link: 10.2903/j.efsa.2014.3550

N. Fray, Y. Bénilan, H. Cottin & M.-C. Gazeau. 2026. New experimental results on the degradation of polyoxymethylene - Application to the origin of the formaldehyde extended source in comets.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Gazeau Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA), UMR 7583 du CNRS, Universités Paris 7 and Paris 12, C.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00207. DOI/link: 10.1029/2003JE002191

Matthias Wittassek, Gerhard Andreas Wiesmüller, Holger Martin Koch, Rolf Eckard, Lorenz Dobler, Johannes Müller, Jürgen Angerer & Christoph Schlüter. 2007. Internal phthalate exposure over the last two decades--a retrospective human biomonitoring study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: A retrospective biomonitoring study analyzed 24-hour urine from 634 young German adults sampled in nine years between 1988 and 2003 for metabolites of DnBP, DiBP, BBzP, DEHP and DiNP, allowing long-term trends in internal exposure to be evaluated.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00208. DOI/link: 10.1016/j.ijheh.2007.01.037

European Food Safety Authority (EFSA). 2026. Bisphenol A (BPA) in food contact materials - new scientific opinion from EFSA regarding public health risk.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: The wide use of bisphenol A (BPA) as a monomer in plastics manufacture or epoxy resins intended for food contact materials (FCM) has triggered numerous concerns due to toxicological findings indicating possible endocrine disrupting properties. This article traces the evolution of the scientific opinions since 1986 when the Tolerable Daily Intake (TDI) for BPA and its specific migration limit (SML) from plastic FCM into food were proposed for the first time by the Scientific Committee for Food (SCF).

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00209.

Zhongyuan Wang, Tongtong Zhang, Jiajin Wu, Xiyi Wei, Aiming Xu, Shangqian Wang & Zengjun Wang. 2021. Male reproductive toxicity of perfluorooctanoate (PFOA) - Rodent studies.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This systematic review/meta-analysis evaluated PFOA effects on the male reproductive system in rodents and reported greater adverse effects with longer-term and higher-dose exposure. It concerns PFAS, not phthalates.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00210. DOI/link: 10.1016/j.chemosphere.2020.128608

Holger M. Koch, Matthew Lorber, Krista L.Y. Christensen, Claudia Pålme, Stephan Koslitz & Thomas Brüning. 2013. Identifying sources of phthalate exposure with human biomonitoring - Results of a 48h fasting study with urine collection and personal activity patterns.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five adults completed a 48-hour fast on glass-bottled water while serial urine and activity data were collected. The study used changes in urinary phthalate metabolites during fasting to distinguish diet-related exposure from continuing non-dietary sources.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00211. DOI/link: 10.1016/j.ijheh.2012.12.002

Joseph S. Alpert & Qin Mary Chen. 2026. Microwaving in Plastic: Is it Safe? | Time.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00212.

V.A. Santhi, N. Sakai, E.D. Ahmad & A.M. Mustafa. 2012. Occurrence of bisphenol A in surface water, drinking water and plasma from Malaysia with exposure assessment from consumption of drinking water.

Design: Occurrence, migration, source or exposure study.

Findings: In Malaysia, BPA was detected in 93% of sampled surface waters and at lower levels in most drinking-water samples. The authors estimated BPA intake from drinking water at less than 0.01% of the tolerable daily intake used in that assessment.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00213. DOI/link: 10.1016/j.scitotenv.2012.04.041

Simo P. Porras, Jani Koponen, Minna Hartonen, Hannu Kiviranta & Tiina Santonen. 2026. Non-occupational exposure to phthalates in Finland - ABSTRACT.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The aim of this study was to assess phthalate exposure of non-occupationally exposed working aged population in Finland.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00214. DOI/link: 10.1016/j.toxlet.2020.06.021

Rose O. Sulentic, Irina Dumitrascu, Nicole C. Deziel & Anca E. Gurzau. 2018. Phthalate Exposure from Drinking Water in Romanian Adolescents.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Among 40 Romanian adolescents, the study compared water consumption and consumer-product use with urinary phthalate biomarkers. It was designed to assess the contribution of drinking water and other behaviors to adolescent phthalate exposure rather than to establish a health effect.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00215. DOI/link: 10.3390/ijerph15102109

Hermann Fromme, Thomas K  chler, Thomas Otto, Konstanze Pilz, Josef M  ller & Andrea Wenzel. 2002. Occurrence of phthalates and bisphenol A and F in the environment.

Design: Occurrence, migration, source or exposure study.

Findings: German environmental samples were analyzed for BPA, BPF, BBP, DBP and DEHP. DEHP dominated the measured phthalates: 0.33-97.8 µg/L in surface water, 1.74-182 µg/L in sewage effluent, 27.9-154 mg/kg dry weight in sewage sludge and 0.21-8.44 mg/kg in sediment; DBP was minor and BBP was detected only in a few samples at low levels.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00216. DOI/link: 10.1016/S0043-1354(01)00367-0

Ulla B. Mogensen, Philippe Grandjean, Flemming Nielsen, Pal Weihe & Esben Budtz-J  rgensen. 2026. Breastfeeding as an Exposure Pathway for Perfluorinated Alkylates.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Perfluorinated alkylate substances (PFASs) are widely used and have resulted in human exposures worldwide.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00217. DOI/link: 10.1021/acs.est.5b02237

Raed Awad, Yihui Zhou, Elisabeth Nyberg, Shahla Namazkar, Wu Yongning, Qianfen Xiao, Yaije Sun, Zhiliang Zhu,   ke Bergman & Jonathan P. Benskin. 2026. Emergingper-andpolyfluoroalkylsubstances.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00218. DOI/link: 10.1039/D0EM00077A

Source author not identified in online metadata. 2026. Factsheet-Breast-Milk-Study-May-2021.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Toxic Chemicals in Breast Milk How we can solve this problem Breast milk is widely regarded to be one of the healthiest food sources for babies. However, Scientific evidence shows that, when possible, breastfeeding is healthiest for babies and moms. results from a new study give breastfeeding Breastfed babies have fewer infections and reduced mothers a cause for concern when it comes risk of asthma, obesity, diabetes, and other health to protecting their babies' health.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00219.

FluoroCouncil. 2026. FluoroCouncil110117.

Design: Materials / plasticizer study or technical source.

Findings: FluoroCouncil Briefing to the WA State Departments of Ecology and Health Perand Polyfluoroalkyl Substances (PFAS) Chemical Action Plan (CAP) November 1, 2017 Outline • Key Messages • PFAS Chemical Differences • Overview of Major Comments • Conclusion 2 Key Messages • FluoroCouncil supports development of a scienceand risk-based PFAS CAP. • Long-chain PFAAs are detected in the WA environment and wildlife. • Contamination continues through use of stockpiled products and import of chemicals and articles containing long-chain PFAAs. • Short-chain PFAAs, their precursors, and fluoropolymers are not PBTs. • Short-chain PFAAs are less frequently..

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00220.

Linda R. Macheke-Tendenguwo, Joshua O. Olowoyo, Liziwe L. Mugivhisa & Ovokeroye A. Abafe. 2026.

PerandPolyfluoroalkylsinHumanBreastMilkAndCurrentAnalyticalMethods.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00221. DOI/link: 10.1007/s11356-018-3483-z

Jun Yup Kim, Jong-Won Chung, Beom Joon Kim, Moon-Ku Han, Kyusik Kang, Jong-Moo Park, Sang-Soon Park, Tai Hwan Park, Yong-Jin Cho, Keun-Sik Hong, Kyung Bok Lee, Youngchai Ko, SooJoo Lee, Dae-Hyun Kim, Hyun-Wook Nah, Jae-Kwan Cha, Mi-Sun Oh, Kyung-Ho Yu, Byung-Chul Lee, Myung Suk Jang, Ji Sung Lee, Juneyoung Lee & Hee-Joon Bae. 2026. tp200-p.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: G577 Toxicological Profile for Perfluoroalkyls Released May 2021 Last Updated March 2020 PERFLUOROALKYLS ii DISCLAIMER Use of trade names is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. PERFLUOROALKYLS iii FOREWORD This toxicological profile is prepared in accordance with guidelines* developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Environmental Protection Agency (EPA).

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00222.

Ziyad Abunada, Motasem Y. D. Alazaiza & Mohammed J. K. Bashir. 2026. water-12-03590-v3.

Design: Occurrence, migration, source or exposure study.

Findings: The current article reviews the state of art of the perfluoroalkyl and polyfluoroalkyl substances (PFASs) compounds and

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00223. DOI/link: 10.3390/w12123590

Heather D. Whitehead, Marta Venier, Yan Wu, Emi Eastman, Shannon Urbanik, Miriam L. Diamond, Anna Shalin, Heather Schwartz-Narbonne, Thomas A. Bruton, Arlene Blum, Zhanyun Wang, Megan Green, Meghanne Tighe, John T. Wilkinson, Sean McGuinness & Graham F. Peaslee. 2026. Fluorinated Compounds in North American Cosmetics.

Design: Occurrence, migration, source or exposure study.

Findings: Perand polyfluoroalkyl substances (PFAS), a highly persistent and potentially toxic class of chemicals, are added to cosmetics to increase their durability and water resistance.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00224. DOI/link: 10.1021/acs.estlett.1c00240

Source author not identified in online metadata. 2026. More than HALF of cosmetics likely to contain toxic chemicals that can cause CANCER, study warns | D.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00225.

Source author not identified in online metadata. 2026. Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00226.

Source author not identified in online metadata. 2026. Beyond paper: PFAS linked to common plastic packaging used for food, cosmetics, and much more.

Design: Occurrence, migration, source or exposure study.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00227.

Henri P. Sangam & R. Kerry Rowe. 2026. Effect of Surface Fluorination on Diffusion through a High Density Polyethylene Geomembrane.

Design: Occurrence, migration, source or exposure study.

Findings: The relative improvement of the diffusive barrier function of high density polyethylene 共 HDPE 共 geomembranes to volatile organic compounds 共 VOCs 共 when subjected to surface fluorination is experimentally examined. Sorption and diffusion tests were performed on both traditional “untreated” and “fluorinated” 1.5 mm HDPE geomembranes using dilute aqueous organic contaminants commonly found in municipal solid waste leachate.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00228.

Cheryl Hogue. 2026. EPA Takes Action to Investigate PFAS Contamination | US EPA.

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00229.

Thekla Volkmann & Hartmut Widdecke. 2026. Fluorination of polyethylene films.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Fluorination of HDPE films (100 and 1800 (~mthick) and LDPE films (100 brn thick) with elemental fluorine is described. The degree of fluorination was increased by increasing the concentration of fluorine in the F₂/N₂ gas mixture. A diffusion-controlled process was indicated by plotting the measured depth of fluorination against the square root of fluorination time.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00230.

Alexander P. Kharitonov, Galina V. Simbirtseva, Vyacheslav M. Bouznik, Maxim G. Chepezubov, Marc Dubois, Katia Guérin, Andre Hamwi, Hayat Kharbache & Francis Masin. 2026. Modification of ultra-high-molecular weight polyethylene by various fluorinating routes.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Modification of Ultra-High-Molecular Weight Polyethylene by Various Fluorinating Routes ALEXANDER P. CHEPEZUBOV,3 MARC DUBOIS,4 KATIA GUÉRIN,4 ANDRE HAMWI,4 HAYAT KHARBACHE,5 FRANCIS MASIN5 1 Institute of Energy Problems of Chemical Physics (Branch) of the Russian Academy of Sciences, Chernogolovka, Moscow Region, 142432, Russia 2 A.A.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00231. DOI/link: 10.1002/pola.24793

Ni Zhao, Yongjie Nie & Shengtao Li. 2026. Modulation of DC breakdown strength by direct fluorination in polyethylene.

Design: Materials / plasticizer study or technical source.

Findings: Breakdown performance of polymer under high voltage direct current (DC) and alternating current (AC) fields is receiving more and more attentions with the ever-increasing demand of raising voltage class and developing long-distance transmission. The existing researches indicate that space charge should play an important role in influencing breakdown performance.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00232. DOI/link: 10.1007/s10854-018-9404-6

Amy A. Rand & Scott A. Mabury. 2026. Perfluorinated Carboxylic Acids in Directly Fluorinated High-Density Polyethylene Material.

Design: Materials / plasticizer study or technical source.

Findings: Perfluorinated carboxylic acids (PFCAs) are ubiquitous in the environment and have been detected in human blood worldwide. One potential route is direct exposure to PFCAs through contact with polymers that have been fluorinated through a process referred to as direct fluorination.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00233. DOI/link: 10.1021/es1043968

Source author not identified in online metadata. 2026. results-of-rinsates-samples 03042021.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON D.C., 20460 OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION March 04, 2021 MEMORANDUM SUBJECT: EPA's Analytical Chemistry Branch PFAS Testing Rinses from Selected Fluorinated and Non-Fluorinated HDPE Containers FROM: Thuy Nguyen, Chief Analytical Chemistry Branch Biological and Economic Analysis Division To: Kimberly Nesci, Director Biological and Economic Analysis Division BACKGROUND The EPA's Analytical Chemistry Laboratory at Fort Meade has tested a limited number of fluorinated and non-fluorinated HDPE (High Density Polyethylene) containers for presence of PFAS (Perand..

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00234.

L. J. Hayes & D. D. Dixon. 2026. Solvent barrier property for fluorinated polyethylene.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Solvent Barrier Property for Fluorinated Polyethylene L. DIXON, Corporate Research and Development, Air Products and Chemicals, Inc., Allentown, Pennsylvania 18105 Synopsis Solvent barrier studies for fluorinated polyethylene have shown that the fluorinated surfaces reduce the rate of permeation for many solvents.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00235.

Yaqiang Liu, Qingqing Chen, Xuelian Du, Liqiang Li & Peng Li. 2026. Surface modification of polyethylene terephthalate films by direct fluorination.

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00236. DOI/link: 10.1063/1.5066246

H. Schonhorn & R. H. Hansen. 2026. Surface treatment of polymers. II. Effectiveness of fluorination as a surface treatment for polyethylene.

Design: Materials / plasticizer study or technical source.

Findings: 1231-1237 (1968) Surface Treatment of Polymers. Effectiveness of Fluorination as a Surface Treatment for Polyethylene H.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00237.

G. Kranz, R. Lüschen, T. Gesang, V. Schlett, O.D. Hennemann & W.D. Stohrer. 2026. The effect of fluorination on the surface characteristics and adhesive properties of polyethylene and polypropylene.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The effect of fluorination on the surface characteristics and adhesive properties of polyethylene and polypropylene G. Hennemann Fraunhofer-Institut (IFAM), 28719 Bremen, Germany and W.D.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00238.

F.J. du Toit, R.D. Sanderson, W.J. Engelbrecht & J.B. Wagener. 2026. The effect of surface fluorination on the wettability of high density polyethylene.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: High-density polyethylene (HDPE) samples have been fluorinated and oxyfluorinated for different times. The total surface tension of HDPE increased drastically with the length of oxyfluorination treatment, but levelled off after longer treatments. Fluorination resulted in a marked decrease in the total surface tension of HDPE. During fluorination, the dispersive component of the surface tension decreased progressively with fluorination time, while the polar component increased initially but decreased again with longer fluorination treatments.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00239.

Kyle Steenland, Tony Fletcher & David A. Savitz. 2026. Epidemiologic Evidence on the Health Effects of Perfluorooctanoic Acid (PFOA).

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Review Epidemiologic Evidence on the Health Effects of Perfluorooctanoic Acid (PFOA) Kyle Steenland, 1 Tony Fletcher, 2 and David A.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00240. DOI/link: 10.1289/ehp.0901827

Antonia M. Calafat, Lee-Yang Wong, Zsuzsanna Kuklenyik, John A. Reidy & Larry L. Needham. 2026. Polyfluoroalkyl Chemicals in the U.S. Population - Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2004 and Comparisons with NHANES 1999–2000.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Research Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2004 and Comparisons with NHANES 1999–2000 Antonia M.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00241. DOI/link: 10.1289/ehp.10598

Source author not identified in online metadata. 2026. German Study: Alarming Levels of Dangerous Plastics in Children's Bodies | Common Dreams News.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: 50 Comments SIGN UP News That Matters Sanders Vows, If Elected, to Pursue Criminal Charges Against Big Oil for In urine samples, residues of various plastic ingredients were found in 97 to 100 percent of the children examined.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00242.

Source author not identified in online metadata. 2026. Weichmacher und PFOA: Fast alle Kinder mit gesundheitskritischen Chemikalien belastet - SPIEGEL ONLINE.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Weichmacher und PFOA: Fast alle Kinder mit gesundheitskritischen Chemikalien belastet - SPIEGEL ONLINE 9/20/19, 8)05 AM Menü Politik Meinung Wirtschaft Panorama Sport Kultur Netzwelt Wissenschaft mehr ! GESUNDHEIT Schlagzeilen | DAX 12.456,34 | Abo Nachrichten $\angle$ Gesundheit $\angle$ Schwangerschaft & Kind $\angle$ Kindergesundheit $\angle$ Weichmacher und PFOA: Fast alle Kinder mit gesundheitskritischen Chemikalien belastet Umweltbundesamt Fast alle Kinder sind mit Weichmachern belastet Von Kleinkindern bis hin zu Jugendlichen - sie alle haben Rückstände von Plastikinhaltstoffen im Körper.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00243.

Michael J. Bentel, Yaochun Yu, Lihua Xu, Zhong Li, Bryan M. Wong, Yujie Men & Jinyong Liu. 2026. Defluorination of Per- and Polyfluoroalkyl Substances (PFASs) with Hydrated Electrons - Structural Dependence and Implications to PFAS Remediation and Management.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: 2019, 53, 3718–3728 pubs.acs.org/est Defluorination of Perand Polyfluoroalkyl Substances (PFASs) with Hydrated Electrons: Structural Dependence and Implications to PFAS Remediation and Management Michael J. Bentel,† Yaochun Yu,§ Lihua Xu,† Zhong Li,|| Bryan M.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00244. DOI/link: 10.1021/acs.est.8b06648

Olalekan C. Olatunde, Alex T. Kuvarega & Damian C. Onwudiwe. 2026. Photo enhanced degradation of polyfluoroalkyl and perfluoroalkyl substances.

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00245. **DOI/link:** 10.1016/j.heliyon.2020.e05614

Sudipta Dutta, Diana K. Haggerty, Daniel A. Rappolee & Douglas M. Ruden. 2020. Phthalate Exposure and Long-Term Epigenomic Consequences - A Review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review evaluated toxicogenomic and epigenomic evidence on phthalates, including DNA methylation and possible multigenerational or transgenerational effects. It summarizes experimental and epidemiologic evidence rather than demonstrating such effects at ordinary human exposure.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00246. **DOI/link:** 10.3389/fgene.2020.00405

Holger Martin Koch, Andreas Haller, Tobias Weiß, Heiko-Udo Käfferlein, Joachim Stork & Thomas Brüning. 2011. Phthalate exposure during cold plastisol application—a human biomonitoring study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Five workers applying a DINP-based plastisol were studied using pre- and post-shift urinary metabolites, with ten workers from the same plant as a comparison group. The comparison group had phthalate biomarker levels in the range of the general German population, while the study documented occupational uptake associated with plastisol work.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00247. **DOI/link:** 10.1016/j.toxlet.2011.06.010

Victoria M. Pak, Linda A. McCauley & Jennifer Pinto-Martin. 2011. Phthalate Exposures and Human Health Concerns A Review and Implications for Practice.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review states that high phthalate exposures have been associated with adverse male fetal reproductive development and that animal studies consistently demonstrate reproductive effects, while noting that additional human epidemiology is needed to characterize human risk.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00248. **DOI/link:** 10.3928/08910162-20110426-01

Joseph S. Alpert & Qin Mary Chen. 2026. Microwaving in Plastic: Is it Safe? | Time.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00249.

Iman Al-Saleh & Rola Elkhatab. 2016. Screening of phthalate esters in 47 branded perfumes.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00250. **DOI/link:** 10.1007/s11356-015-5267-z

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2026. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00251.

Aikaterini Zafeiri, Rod T Mitchell, David C Hay & Paul A Fowler. 2021. Over-the-counter analgesics during pregnancy - a comprehensive review of global prevalence and offspring safety.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This comprehensive review evaluated prevalence of over-the-counter analgesic use in pregnancy and evidence on offspring safety. The authors found the safety literature conflicting and emphasized limitations that prevent simple causal conclusions.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00252. DOI/link: 10.1093/humupd/dmaa042

Michael A. Kamrin. 2009. Phthalate risks, phthalate regulation, and public health - a review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review compared regulatory risk evaluations with biomonitoring, epidemiologic and animal evidence. The author concluded that assessed human risks were low overall, while noting concerns for particular high-exposure uses such as some medical devices; the article also argued that existing restrictions were unlikely to produce large public-health gains.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00253. DOI/link: 10.1080/10937400902729226

Mouen A. Khashab. 2026. phthalates updates live file 508 0.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00254.

Jenny L. Carwile, Henry T. Luu, Laura S. Bassett, Daniel A. Driscoll, Caterina Yuan, Jennifer Y. Chang, Xiaoyun Ye, Antonia M. Calafat & Karin B. Michels. 2026. Polycarbonate Bottle Use and Urinary Bisphenol A Concentrations.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00255. DOI/link: 10.1289/ehp.0900604

Victoria McGovern. 2026. Polycarbonate Plastics and Human BPA Exposure - Urinary Levels Rise with Use of Drinking Bottles.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: News | Science Selections New Face of a arsenic limit of 10 ppb, but private well water is unregulated. The current study was inspired by recent epidemiologic research One of the puzzles of the 2009 pandemic of novel H1N1 influenza indicating that chronic exposure to arsenic increased the risk for a varivirus is why some populations are being hit harder than others—a ety of pulmonary diseases including impaired lung function, cancer, reminder that known susceptibility factors cannot always explain why and bronchiectasis.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00256.

Giehae Choi, Gro D. Villanger, Samantha S.M. Drover, Amrit K. Sakhi, Cathrine Thomsen, Rachel C. Nethery, Pål Zeiner, Gun Peggy Knudsen, Ted Reichborn-Kjennerud, Kristin R. Øvergaard, Amy H. Herring, Annette H. Skogan, Guido Biele, Heidi Aase & Stephanie M. Engel. 2021. Prenatal phthalate exposures and executive function in preschool children.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This birth-cohort study examined prenatal urinary phthalate biomarkers in relation to preschool executive function. The authors framed the results as observational associations and noted that prior neurodevelopmental findings vary by metabolite, endpoint and child sex.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00257. DOI/link: 10.1016/j.envint.2021.106403

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00258. DOI/link: 10.1038/s41370-019-0168-8

Kelly K. Ferguson, Emma M. Rosen, Zaira Rosario, Zlatan Feric, Antonia M. Calafat, Thomas F. McElrath, Carmen Vélez Vega, José F. Cordero, Akram Alshawabkeh & John D. Meeker. 2019. Environmental phthalate exposure and preterm birth in the PROTECT birth cohort.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In the prospective PROTECT cohort, phthalate and replacement-plasticizer metabolites were measured in urine at three pregnancy visits and evaluated in relation to preterm birth. The design provides repeated prenatal exposure measurements but remains observational.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00259. DOI/link: 10.1016/j.envint.2019.105099

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00260. DOI/link: 10.1038/s41370-019-0168-8

PROTECT Study Team. 2026. PROTECT » PROTECT Study Finds Decrease in Phthalate Exposure Coincides with Increase in Phthalate Re.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00261.

Yanelli Rodríguez-Carmona, Pahriya Ashrap, Antonia M. Calafat, Xiaoyun Ye, Zaira Rosario, Leah D. Bedrosian, Gredia Huerta-Montanez, Carmen M. Vélez-Vega, Akram Alshawabkeh, José F. Cordero, John D. Meeker & Deborah Watkins. 2020. Determinants and characterization of exposure to phthalates, DEHP and DINCH among pregnant women in the PROTECT birth cohort in Puerto Rico.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This PROTECT birth-cohort analysis characterized repeated urinary biomarkers of phthalates, DEHP and DINCH in pregnant women in Puerto Rico and evaluated demographic, dietary and product-use determinants of exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00262. DOI/link: 10.1038/s41370-019-0168-8

Robert Frankowski, Agnieszka Zgoła-Grześkowiak, Tomasz Grześkowiak & Krzysztof Sójka. 2026. The presence of bisphenol A in the thermal paper in the face of changing European regulationseA comparative global research.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00263. DOI/link: 10.1016/j.envpol.2020.114879

Sylvia C. Hewitt & Kenneth S. Korach. 2026. Estrogenic Activity of Bisphenol A and 2,2-bis(p-Hydroxyphenyl)-1,1,1-trichloroethane (HPTE) Demonstrated in Mouse Uterine Gene Profiles.

Design: Experimental animal toxicology or mechanistic study.

Findings: Research Estrogenic Activity of Bisphenol A and 2,2-bis(p-Hydroxyphenyl)-1,1,1-trichloroethane (HPTE) Demonstrated in Mouse Uterine Gene Profiles Sylvia C. Microarray studies have We have developed microarray profiling indicated that estradiol (E2)-stimulated uterine responses can be divided into early and late phases.

Risk relevance: Defines experimental hazard/mechanism; human risk requires comparison of species, route, dose and exposure window.

Key limitations: Animal model, dose and endpoint are study-specific; translation to human exposure requires toxicokinetic and dose-response context.

Catalogue ID: PHT-00264. DOI/link: 10.1289/ehp.1002347

Iman Al-Saleh & Rola Elkhatab. 2016. Screening of phthalate esters in 47 branded perfumes | ABSTRACT.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00265. DOI/link: 10.1007/s11356-015-5267-z

Iman Al-Saleh & Rola Elkhatab. 2016. Screening of phthalate esters in 47 branded perfumes.

Design: Occurrence, migration, source or exposure study.

Findings: Five phthalates (DMP, DEP, DBP, BBP and DEHP) were measured in 47 branded perfumes by headspace SPME-GC-MS. The study detected phthalates in commercial products and reported substantial product-to-product variability.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00266. DOI/link: 10.1007/s11356-015-5267-z

Lauren E. Johns, Glinda S. Cooper, Audrey Galizia & John D. Meeker. 2015. Exposure assessment issues in epidemiology studies of phthalates.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This methodological review identifies major exposure-assessment problems in phthalate epidemiology, including short biological half-lives, within-person variability and the limitations of single spot urine samples for estimating longer-term exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00267. DOI/link: 10.1016/j.envint.2015.08.005

Source author not identified in online metadata. 2026. That Plastic Container You Microwave In Could Be Super-Toxic HEADLINE FOR PARADOX II.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00268.

eClinicalMedicine. 2026. Is BPA on Thermal Paper A Health Risk? — Plastic Pollution Coalition.

Design: Materials / plasticizer study or technical source.

Findings: This source is outside the core phthalate evidence base. It is retained only for comparative chemical/material context; no phthalate-specific finding is inferred.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00269.

Idan Hollander, Kerem Avital, Uri Goldbourt & Assaf Buch. 2026. Toxic Mix: Cash Register Receipts and Hand Sanitizer | Newsmax.com.

Design: Materials / plasticizer study or technical source.

Findings: News/communication material; not a primary scientific source.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00270.

James L. Preau, Lee-Yang Wong, Manori J. Silva, Larry L. Needham & Antonia M. Calafat. 2010. Variability over 1 Week in the Urinary Concentrations of Metabolites of Diethyl Phthalate and Di(2-Ethylhexyl) Phthalate among Eight Adults - An Observational Study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Eight adults provided repeated urine samples over one week to assess within-person variability of DEP and DEHP metabolites. Because phthalates are rapidly metabolized and excreted, the study tested how well a spot urine sample represents exposure over longer periods.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00271. DOI/link: 10.1289/ehp.1002231

Lauren E Parlett, Antonia M. Calafat & Shanna H Swan. 2013. Women's exposure to phthalates in relation to use of personal care products.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Among 337 women, reported use of 13 personal-care products during the preceding 24 hours was compared with urinary phthalate metabolites. The study evaluated personal-care-product use as a short-term determinant of internal phthalate exposure.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00272. DOI/link: 10.1038/jes.2012.105

Jessie P Buckley, Rachel T Palmieri, Jeanine M Matuszewski, Amy H Herring, Donna D Baird, Katherine E Hartmann & Jane A Hoppin. 2026. BPA and Phthalate Levels Consumer Reports 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00273.

M. I. González-Castro, M. F. Olea-Serrano, A. M. Rivas-Velasco, E. Medina-Rivero, Leandro G. Ordoñez-Acevedo & A. De León-Rodríguez. 2026. Consumer Reports Test Methodology for Bisphenols and Phthalates in Food 01-24.

Design: Occurrence, migration, source or exposure study.

Findings: 1306 relevant phthalates, and three phthalate replacement (2013): 45-58. compounds in various supermarket and fast food products; 2) compare the exposure estimates from the analyses to • Phthalates (BBzP, DBP, DiBP, DCHP, DEP, DEHP, DnHP, both the available tolerable daily intake levels and identified DMP, DiNP, and DNOP), and Phthalate Replacements levels of concerns in research for these chemicals; 3) use this (DEHA, DINCH, and DEHT) by Gas Chromatography information to inform the public about the occurrence and Mass Spectrometry (GC-MS/MS).

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00274.

Source author not identified in online metadata. 2026. Plastic Chemicals Causing Infertility, Diabetes Found 'Widespread' in Common Food Items: Report | Th.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00275.

Patricia A. Enneking. 2026. The Plastic Chemicals Hiding in Your Food - Consumer Reports BPA Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: Consumer-testing or media material; useful for occurrence/context but not a peer-reviewed epidemiologic or toxicology study.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00276.

Richard H. McKee, R. T. Przygoda, M. A. Chirdon, G. Engelhardt & M. Stanley. 2026. casrn 26761-40-0 di-isodecyl phthalate draft scope CERCLA DINP.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Regulatory scoping document; defines conditions of use and assessment scope rather than reporting a new experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00277.

Julio Fernandez-Mendoza. 2026. Perfume ingredient can lead to heart issues and infertility, say doctors.

Design: Occurrence, migration, source or exposure study.

Findings: SECTIONS LOG IN Lifestyle Health Wellness Fitness Health Care Medicine Men's Health TRENDING NOW IN HEALTH How long you should Why so many people 'Rema be able to do a plank at are having strokes in habit every age, from 20s... cance HEALTH SHOP HEALTH DEALS Hidden ingredient Cannabis use among in your perfume seniors continues to rise — and so do th... health risks can lead to heart The NIRA Pro+ Laser problems, obesity — God's answer to Botox?

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00278.

Cosmetic Ingredient Review Expert Panel. 2026. Chapter 7 Final Report on the Safety Assessment of Dibutyl Phthalate, Dimethyl Phthalate, and Diethyl Phthalate 1985.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: phthalates are rapidly absorbed, metabolized, and excreted. Acute animal feeding studies indicate that these ingredients are nontoxic.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00279.

Po-Chin Huang, Kai-Wei Liao, Jung-Wei Chang, Shiou-Hui Chan & Ching-Chang Lee. 2018. Characterization of phthalates exposure and risk for cosmetics and perfume sales clerks.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Pre- and post-shift urine from cosmetics, perfume and clothing sales clerks was combined with workplace air measurements. Cosmetics/perfume clerks had higher urinary MEP, MBP and MEHP and higher air DEP/DEHP than comparison workers, supporting inhalation and dermal/product use as occupational exposure routes.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00280. DOI/link: 10.1016/j.envpol.2017.10.079

Megan Alfieri. 2026. CNN Reporters Chemical Wristbands Phthalate 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00281.

Rosa Lange, Nina Vogel, Phillipp Schmidt, Antje Gerofke, Mirjam Luijten, Wieneke Bil, Tiina Santonen, Greet Schoeters, Liese Gilles, Amrit K. Sakhi, Line S. Haug, Tina K. Jensen, Hanne Frederiksen, Holger M. Koch, Tamás Szigeti, Máté Szabados, Janja Snoj Tratnik, Darja Mazej, Catherine Gabriel, Dimosthenis Sarigiannis, Vazha Dzhezdzheia, Spyros Karakitsios, Loïc Rambaud, Margaux Riou, Gudrun Koppen, Adrian Covaci, Martin Zvonář, Pavel Piler, Jana Klánová, Lucia Fábelová, Denisa Richterová, Tina Kosjek, Agneta Runkel, Susana Pedraza-Díaz, Veerle Verheyen, Michiel Bastiaansen, Marta Esteban-López, Argelia Castaño & Marike Kolossa-Gehring. 2026. Cumulative risk assessment of five phthalates in European children and adolescents.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Koch i, Tamás Szigeti j, Máté Szabados j, Janja Snoj Tratnik k, Darja Mazej k, Catherine Gabriel l, m, Dimosthenis Sarigiannis l, m, n, Vazha Dzhezdzheia l, m, Spyros Karakitsios l, m, Loïc Rambaud o, Margaux Riou o, Gudrun Koppen d, Adrian Covaci p, Martin Zvonář q, Pavel Piler q, Jana Klánová q, Lucia Fábelová r, Denisa Richterová r, Tina Kosjek k, Agneta Runkel k, Susana Pedraza-Díaz s, Veerle Verheyen d, Michiel

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00282. DOI/link: 10.1016/j.ijheh.2022.114052

Jill L. Adelson & Hope E. Wilson. 2026. Debunking-Myths-about-Phthalates-in-Food.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: phthalates are present in manufacture, sale, and distribution of a food package to which consumer diets due to exposure ortho-phthalates have been intentionally added in any amount from plastic food wraps and greater than an incidental presence. containers, potentially causing adverse health effects.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00283.

Shanna H. Swan, Katharina M. Main, Fan Liu, Sara L. Stewart, Robin L. Kruse, Antonia M. Calafat, Catherine S. Mao, J. Bruce Redmon, Christine L. Ternand, Shannon Sullivan, J. Lynn Teague & the Study for Future Families Research Team. 2005. Decrease in Anogenital Distance among Male Infants with Prenatal Phthalate Exposure.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Maternal urinary phthalate metabolites were evaluated in relation to anogenital distance and related genital measures in male infants. The observational study reported inverse associations for several prenatal phthalate biomarkers, but exposure was estimated from maternal urine and causality cannot be established from the design alone.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00284. DOI/link: 10.1289/ehp.8100

Yangyang Wang, Wenhao Zhan, Yidan Liu, Shanshan Cheng, Chaosheng Zhang, Jianhua Ma & Runhua Chen. 2020. Di-n-octyl phthalate degradation by a halotolerant bacterial consortium LF and its application in soil.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A halotolerant bacterial consortium degraded DOP under optimized laboratory conditions, removing 96.33% of 2,000 mg/L DOP; in soil containing 100 mg/kg DOP, the highest reported removal was 89.3%. This is a biodegradation/remediation study, not a human-exposure study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00285. DOI/link: 10.1080/09593330.2020.1713903

Wei Chen, Ke Zhang & Jia Chen. 2026. Enhanced Degradation of di-n-octyl phthalate (DOP) by Phenyllobacterium ESF-17 isolated from waste water treatment plant.

Design: Occurrence, migration, source or exposure study.

Findings: In order to enhance the degradation of Di-n-octyl phthalate (DOP). One bacterial strain was isolated from activated sludge of waste water treatment plant(WWTP) using Di-n-octyl phthalate (DOP) as the sole source of carbon and energy.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00286.

Source author not identified in online metadata. 2026. DEHP Phthalate LD50 NOAEL tp9.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Lee Fig Toxicological Profile for Di(2-Ethylhexyl)Phthalate (DEHP) January 2022 DI(2-ETHYLHEXYL)PHTHALATE ii DISCLAIMER Use of trade names is for identification only and does not imply endorsement by the Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. DI(2-ETHYLHEXYL)PHTHALATE iii FOREWORD This toxicological profile is prepared in accordance with guidelines* developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and the Environmental Protection Agency (EPA).

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00287.

National Center for Biotechnology Information (PubChem). 2026. DEHP Phthalate structure.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00288.

Janice A. Allotey, Meleah Boyle, Amir Sapkota, Linyan Zhu, Roger D. Peng, Mary A. Garza & Lesliam Quirós-Alcalá. 2021. Determinants of phthalate exposure among a U.S.-based group of Latino workers.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Phthalate exposure differed by worker category in a U.S.-based Latino worker study. Overall exposure was lower than in U.S. adults in the general population comparison used by the authors; bleach use and selected foods were associated with higher MBzP.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00289. DOI/link: 10.1016/j.ijheh.2021.113739

Javier González-Sálamo, Bárbara Socas-Rodríguez & Javier Hernández-Borges. 2004. Determination of Phthalates in Environmental, Food and Biomatrices - An Analytical Challenge.

Design: Materials / plasticizer study or technical source.

Findings: Bart Tienpont's 2004 Ghent University doctoral thesis addresses analytical determination of phthalates in environmental, food and biological matrices. It is an analytical-methods thesis rather than a single exposure or toxicology experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00290.

Yuki Ito, Michihiro Kamijima & Tamie Nakajima. 2019. Di(2-ethylhexyl) phthalate-induced toxicity and peroxisome proliferator-activated receptor alpha - a review.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes DEHP toxicokinetics and proposed mechanisms for carcinogenic, reproductive and developmental toxicity, with particular attention to PPAR-alpha-dependent and PPAR-alpha-independent pathways.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00291. DOI/link: 10.1186/s12199-019-0802-z

Xi-Feng Zhang, Teng Zhang, Liu Wang, Hong-Ying Zhang, Yong-De Chen, Xun-Si Qin, Yan-Min Feng, Yan-Ni Feng, Wei Shen & Lan Li. 2026. Diethylhexyl phthalate DEHP NOAEL.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00292.

U.S. Environmental Protection Agency. 2026. DINP Phthalate safe according to EPA 2025 LinkedIn.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00293.

Chenyang Bi, Xinke Wang, Hongwan Li, Xiaofeng Li & Ying Xu. 2021. Direct Transfer of Phthalate and Alternative Plasticizers from Indoor Source Products to Dust- Laboratory Measurements and Predictive Modeling.

Design: Occurrence, migration, source or exposure study.

Findings: Chamber experiments showed substantial direct transfer of plasticizers from source products to contacting dust. DEHP in dust rose to 12 times the pre-experiment level after two days of contact; a mechanistic model reproduced the transfer behavior and identified partitioning, source emission and dust-layer properties as key controls.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00294. DOI/link: 10.1021/acs.est.0c05131

Regine Nagorka, Wolfram Birmili, Jona Schulze & Jan Koschorreck. 2022. Diverging trends of plasticizers (phthalates and non-phthalates) in indoor and freshwater environments—why?.

Design: Occurrence, migration, source or exposure study.

Findings: Nineteen legacy and emerging plasticizers were evaluated in German house dust and suspended particulate matter from major rivers to compare indoor and freshwater trends following market substitution away from some low-molecular-weight phthalates.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00295. DOI/link: 10.1186/s12302-022-00620-4

Bethany R. Hannas, Christy S. Lambright, Johnathan Furr, Kembra L. Howdeshell, Vickie S. Wilson & Leon E. Gray. 2026. Dose-Response Assessment of Fetal Testosterone Production and Gene Expression Levels in Rat Testes Following In Utero Exposure to Diethylhexyl Phthalate, Diisobutyl Phthalate, Diisooheptyl Phthalate, and Diisononyl Phthalate.

Design: Experimental animal toxicology or mechanistic study.

Findings: EPA, Office of Research and Development, NHEERL, RTD, Research Triangle 30 31 Park, North Carolina 32 * Toxicology Assessment Division, Reproductive Toxicology Branch, MD 72, National 33 Health and Environmental Effects Research Laboratory, US Environmental Protection 34 Agency, Research Triangle Park, North Carolina 27711 35 † National Institute of Environmental Health Sciences, National Toxicology Program, 36 37 P.O.

Risk relevance: Defines experimental hazard/mechanism; human risk requires comparison of species, route, dose and exposure window.

Key limitations: Animal model, dose and endpoint are study-specific; translation to human exposure requires toxicokinetic and dose-response context.

Catalogue ID: PHT-00296.

Source author not identified in online metadata. 2026. Draft 3 PVC Pipe Phthalate Study Rebuttal Letter.

Design: Occurrence, migration, source or exposure study.

Findings: , Page 6842 First sentence: “ P hthalates are the most prevalent plasticizers in poly (vinyl chloride) (PVC), the most commonly used polymer for drinking water distribution pipes.” Last sentence: “ This study underscores the need for consideration of chemical structure in predicting phthalate reactivity and highlights potential exposure risks in drinking water infrastructure.” IIB.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00297.

Eastman Chemical Company. 2026. Eastman 168(TM) non-phthalate plasticizer SDS.

Design: Materials / plasticizer study or technical source.

Findings: SDSUS / EN / TSDSUS04 Version: 2.7 Revision Date: 01/15/2016 Initiator: 0001 / PRD 150000072819 SAFETY DATA SHEET SECTION 1: Identification of the substance/mixture and of the company/undertaking Product identifier Product name: Eastman 168(TM) non-phthalate plasticizer Product No.: EAN 975786. P231170K Synonyms, Trade Names: 23117-00 Relevant identified uses of the substance or mixture and uses advised against Identified uses: Plasticizer Uses advised against: None known.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00298.

U.S. Environmental Protection Agency. 2026. EPA 2020 DOP casrn 117-81-7 di-ethylhexyl phthalate final scope HIGHLIGHTED p38.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Regulatory scoping document; defines conditions of use and assessment scope rather than reporting a new experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00299.

U.S. Environmental Protection Agency. 2026. EPA 2020 DOP casrn 117-81-7 di-ethylhexyl phthalate final scope.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Regulatory scoping document; defines conditions of use and assessment scope rather than reporting a new experiment.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00300.

Hyun Jung Koo & Byung Mu Lee. 2026. ESTIMATED EXPOSURE TO PHTHALATES IN COSMETICS AND RISK ASSESSMENT.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00301. DOI/link: 10.1080/15287390490513300

Lacey Robinson & Rachel Miller. 2015. The Impact of Bisphenol A and Phthalates on Allergy, Asthma, and Immune Function- a Review of Latest Findings.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review examined in-vitro, animal and human-cohort evidence concerning BPA and phthalates in allergy, asthma and immune function. It described emerging signals but also emphasized limitations and the need for stronger mechanistic and epidemiologic evidence.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00302. DOI/link: 10.1007/s40572-015-0066-8

Lilia Patricia Bustamante-Montes, Víctor Hugo Borja-Aburto, María A. Hernández-Valero, María Magdalena García-Fábila, Patricia Borja-Bustamante, Rafael González-Álvarez & Germán Antonio Acosta-Gordillo. 2026. Exposure to phthalates during pregnancy can affect a newborn's brain development, study finds.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00303.

Jiong Cao, Yumeng Shi, Mengqi Yan, Hongkai Zhu, Shucong Chen, Ke Xu, Lei Wang & Hongwen Sun. 2023. Face Mask - As a Source or Protector of Human Exposure to Microplastics and Phthalate Plasticizers?.

Design: Occurrence, migration, source or exposure study.

Findings: An experimental device simulated inhalation through five mask types to investigate whether masks could release or intercept microplastics and phthalate plasticizers. This was an exposure-model study, not evidence of disease in mask users.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00304. DOI/link: 10.3390/toxics11020087

Piyawan Leechart, Duangrat Inthorn & Paitip Thiravetyan. 2016. FACTOR AFFECTING DIMETHYL PHTHALATE LEACHED FROM PET BOTTLES.

Design: Occurrence, migration, source or exposure study.

Findings: Twenty-four brands of PET bottles in Thailand were tested for DMP migration. The paper reports greater DMP leaching with increased temperature, longer storage and higher NaCl concentration, and attributes the trend to thermal/hydrolytic degradation under the tested conditions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00305.

Přemysl Mikula, Zdeňka Svobodová & Miriam Smutná. 2026. FDA Defends Revoking Authorizations for Most Phthalates; Remaining Uses Under Review | Food Safety.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00306.

Britt E. Erickson. 2026. Phthalates in Food Packaging and Food Contact Applications | FDA.

Design: Occurrence, migration, source or exposure study.

Findings: FDA notes that ortho-phthalates historically had food-contact uses, mainly as plasticizers and in components such as adhesives, lubricants and sealants. Most prior authorizations were removed after industry abandonment; FDA continues evaluating remaining authorized uses and cumulative-risk grouping for selected phthalates.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00307.

Jonathan M. Acevedo, Linda G. Kahn, Kristyn A. Pierce, Vittorio Albergamo, Anna Carrasco, Robbie S.J. Manuel, Marissa Singer Rosenberg & Leonardo Trasande. 2026. Filling gaps in population estimates of phthalate exposure globally - A systematic review and meta-analysis of international biomonitoring data.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00308. DOI/link: 10.1016/j.ijheh.2025.114539

Luciana Gallo, Melina Paola Michlig, Maria Rosa Repetti, Agustina Donini, Adrian E. Rodriguez, Mariano Sironi & Marcela M. Uhart. 2026. First report of phthalate acid esters (plasticizers) in blubber of southern right whales (*Eubalaena australis*) from Península Valdés, Argentina.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalate acid esters (PAEs) are widely used plastic additives that have become ubiquitous contaminants in marine environments. Filter-feeding baleen whales may be exposed to these pollutants through water, prey or ingested plastic debris.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00309. DOI/link: 10.1007/s00300-026-03508-8

Julia R. Barrett. 2026. Health on the Factory Floor - Occupational Phthalate Exposure Reduces Testosterone.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Environews Science Selections Man's Worst Friend? the target of TCDD; these results were expressed as a TCDD equivalent (TEQ). Animal studies indicate that 2,3,7,8-tetrachlorodibenzo-p-dioxin Serum TCDD levels increased significantly with age and con- (TCDD) and related compounds are reproductive and developmensusumption of eggs, fish, and chicken. Rising TEQ values were associatal toxicants, but effects of human ated with greater sperm concentration exposures are unclear.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00310.

Gursel Isci & Elif Dagdemir. 2026. Human health risk assessment of phthalate esters and antimony levels in beverages packaged in polyethylene terephthalate under different storage conditions.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00311. DOI/link: 10.1016/j.jfca.2023.105922

Susan S. Hoffman, Ziyin Tang, Anne Dunlop, Patricia A. Brennan, Thompson Huynh, Stephanie M. Eick, Dana B. Barr, Blake Rushing, Susan L. McRitchie, Susan Sumner, Kaitlin R. Taibl, Youran Tan, Parinya Panuwet, Grace E. Lee, Jasmin Eatman, Elizabeth J. Corwin, P. Barry Ryan, Dean P. Jones & Donghai Liang. 2026. Impact of prenatal phthalate exposure on newborn metabolome and infant neurodevelopment.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00312. DOI/link: 10.1038/s41467-025-57273-z

Haoming Yang, Lixin Wang, Yuchen Wang, Ziyang Meng, Qinghua Sun, Jianlong Fang, Yu Zhong & Zihao Huang. 2026. Individual Inhalation Exposure to Phthalates and Their Associations with Anthropometric and Physiological Indices in Primary School Children in Jinan, China.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00313. DOI/link: 10.3390/buildings14113397

Yufeng Miao, Runhuai Wang, Chan Lu, Jinping Zhao & Qihong Deng. 2026. Lifetime cancer risk assessment for inhalation exposure to di(2-ethylhexyl) phthalate (DEHP).

Design: Materials / plasticizer study or technical source.

Findings: The plasticizer di(2-ethylhexyl) phthalate (DEHP) is

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00314. DOI/link: 10.1007/s11356-016-7797-4

Thomas P Ahern, Logan G Spector, Per Damkier, Buket Öztürk Esen, Sinna P Ulrichsen, Katrine Eriksen, Timothy L Lash, Henrik Toft Sørensen & Deirdre P Cronin-Fenton. 2026. Medication-Associated Phthalate Exposure and Childhood Cancer Incidence.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Spector, PhD,3 Per Damkier, MD, PhD,4,5 Buket Öztürk Esen, MS,6 Sinna P. Ulrichsen, MS,6 Katrine Eriksen, MS,6 Timothy L.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00315. DOI/link: 10.1093/jnci/djac045

Man Deng, Xueyi Liang, Bibai Du, Dan Luo, Hui Chen, Chunyou Zhu & Lixi Zeng. 2021. Metabolites of phthalates and phthalate alternatives.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This is a laboratory analytical procedure for measuring urinary metabolites of phthalates and phthalate alternatives by chromatographic mass spectrometry. It is a methods document, not a health-effects study.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00316.

Xueying Ye, Pingya Wang, Yichun Wu, Ying Zhou, Yingfei Sheng & Kejie Lao. 2026. Microplastic acts as a vector for contaminants- the release behavior of dibutyl phthalate from polyvinyl chloride pipe fragments in water phase.

Design: Occurrence, migration, source or exposure study.

Findings: The pollution of contaminants brought by plastic fragments is worth paying attention in the study of microplastic. The additives, like phthalates (PAEs), introduced during manufacture, are physically dispersed and can easily release into environment.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00317. DOI/link: 10.1007/s11356-020-10136-0

Fatemeh Sadat Kashfi, Azam Mohammadi, Farzaneh Rostami, Arezou Savari, Gabriel E. De-la-Torre, Jörg Spitz, Reza Saeedi, Mohammadreza Kalantarhormozi, Akram Farhadi & Sina Dobaradaran. 2026. Microplastics and phthalate esters release from teabags into tea drink - occurrence, human exposure, and health risks.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00318. DOI/link: 10.21203/rs.3.rs-2858483/v1

Qiong Luo, Ze-hua Liu, Hua Yin, Zhi Dang, Ping-xiao Wu, Neng-wu Zhu, Zhang Lin & Yu Liu. 2026. Migration and potential risk of trace phthalates in bottled water - A global situation.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00319. DOI/link: 10.1016/j.watres.2018.10.002

Olivier Songue Same, Pierre Nobosse, Guillaume Legrand Ngolong Ngea, Catherine Piveteau, Mohamed Lemdani, Richard Kamga & Benoit Deprez. 2026. Migration Study of Phthalates from Non-Food Plastic Containers Used in Food Preservation.

Design: Occurrence, migration, source or exposure study.

Findings: Migration study of phthalates from non-food plastic containers used in food preservation iew Authors: SONGUE SAME Olivier^{1,3, 6}, NOBOSSE Pierre², NGOLONG NGEA Guillaume Legrand⁴, PIVETEAU Catherine^{6,,}, LEMDANI Mohamed⁵, KAMGA Richard³, *DEPREZ Benoit⁷.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00320.

Takashi Iizuka, Ping Yin, Azna Zuberi, Stacy Kujawa, John S. Coon, Richelle D. Björvang, Pauliina Damdimopoulou, Diana C. Pacyga, Rita S. Strakovsky, Jodi A. Flaws & Serdar E. Bulun. 2026. Mono-(2-ethyl-5-hydroxyhexyl) phthalate promotes uterine leiomyoma cell survival through tryptophan-kynurenine-AHR pathway activation.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: RESEARCH ARTICLE | ENVIRONMENTAL CELL BIOLOGY SCIENCES OPEN ACCESS Mono-(2-ethyl-5-hydroxyhexyl) phthalate promotes uterine leiomyoma cell survival through tryptophan-kynurenine-AHR pathway activation Takashi Iizuka, Ping Yin, Azna Zuberi, Stacy Kujawa, John S.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00321. **DOI/link:** 10.1073/pnas

Georgios Giovanoulis, Thuy Bui, Fuchao Xu, Eleni Papadopoulou, Juan A. Padilla-Sanchez, Adrian Covaci, Line S. Haug, Anna Palm Cousins, Jörgen Magnér, Ian T. Cousins & Cynthia A. de Wit. 2018. Multi-pathway human exposure assessment of phthalate esters and DINCH corrections.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A multi-pathway adult exposure assessment concluded that diet was the major route for the measured phthalates and DINCH in the study population. The authors characterized overall risk as low for the participating adults and noted that dermal uptake required further study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00322. **DOI/link:** 10.1016/j.envint.2017.12.016

Georgios Giovanoulis, Thuy Bui, Fuchao Xu, Eleni Papadopoulou, Juan A. Padilla-Sanchez, Adrian Covaci, Line S. Haug, Anna Palm Cousins, Jörgen Magnér, Ian T. Cousins & Cynthia A. de Wit. 2018. Multi-pathway human exposure assessment of phthalate esters and DINCH.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: A multi-pathway adult exposure assessment concluded that diet was the major route for the measured phthalates and DINCH in the study population. The authors characterized overall risk as low for the participating adults and noted that dermal uptake required further study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00323. **DOI/link:** 10.1016/j.envint.2017.12.016

Stephanie M. Engel, Heather B. Patisaul, Charlotte Brody, Russ Hauser, Ami R. Zota, Deborah H. Bennet, Maureen Swanson & Robin M. Whyatt. 2021. Neurotoxicity of Ortho-Phthalates - Recommendations for Critical Policy Reforms to Protect Brain Development in Children.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: This policy/evidence review argues that longitudinal birth-cohort and experimental animal evidence supports concern about ortho-phthalates and child neurodevelopment. It is a synthesis and policy recommendation, not a new exposure experiment.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00324. **DOI/link:** 10.2105/AJPH.2020.306014

Source author not identified in online metadata. 2026. NOAEL Phthalates 5. What daily exposure levels to phthalates are considered safe.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: EUROPA > DG Health and Consumer Protection > Public Health Contact | Search Languages: English [en] Phthalates » Level 2 » Question 5 Source document: SCHER (2008) Summary & Details: GreenFacts (2009) About... What daily exposure levels to phthalates are considered safe? Current understanding about the effects of exposure to a specific phthalate on human health is mainly based on findings from animal studies.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00325.

Victor G. Mihucz & Gyula Záray. 2016. Occurrence of Antimony and Phthalate Esters in Polyethylene Terephthalate Bottled Drinking Water.

Design: Occurrence, migration, source or exposure study.

Findings: This review evaluated antimony and phthalate leaching from PET bottled water across storage time, heat/light exposure, pH and bottle volume. It concluded that reported concentrations normally did not exceed applicable health limits and highlighted phthalate cross-contamination as a major analytical concern.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00326. **DOI/link:** 10.1080/05704928.2015.1105243

Xiaohong Xue, Yaoming Su, Hailei Su, Dongping Fan, Hongliang Jia, Xiaoting Chu, Xiaoyang Song, Yuxian Liu, Feilong Li, Jingchuan Xue & Wenbin Liu. 2021. Occurrence of Phthalates in Bottled Drinks in the Chinese Market and Its Implications for Dietary Exposure.

Design: Occurrence, migration, source or exposure study.

Findings: Fifteen phthalates were measured in 105 bottled beverages in China. DEHP was the most frequently detected and most abundant analyte (up to 41,000 ng/L); DIBP and DBP were also common, and at least one phthalate was detected in every tested drink.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00327. **DOI/link:** 10.3390/molecules26196054

Fabiana Di Duca, Paolo Montuori, Elvira De Rosa, Immacolata Russo, Raffaele Palladino, Stefano Scippa, Giuseppe Dadà, Maria Triassi & Sergi Díez. 2025. Occurrence of volatile organic compounds (VOCs) and phthalate acid esters (PAEs) in recycled PET - Implications for food packaging materials.

Design: Occurrence, migration, source or exposure study.

Findings: VOCs and phthalic-acid esters were measured in virgin and recycled PET across recycling stages. Recycled PET showed higher non-intentionally added substance levels, and higher recycled content correlated with higher contaminant concentrations in the tested materials.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00328. **DOI/link:** 10.1016/j.chroma.2025.466433

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2026. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water in Tianjin, China FULL.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00329. **DOI/link:** 10.1016/j.jhazmat.2020.124891

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2026. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water in Tianjin, China.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00330. DOI/link: 10.1016/j.jhazmat.2020.124891

Eunsol Heo, Zhijun Wu, Atsushi Matsuki, Ning Tang, Amgalan Natsagdorj, Minjung Song, Kyoung Soon Jang, Changhyuk Kim, Beelee Chua, Ahjeong Son & Jiye Lee. 2026. Particulate-bound phthalates as blind spot pollutant in air quality monitoring.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00331. DOI/link: 10.4491/er.2025.479

Lidia Mínguez-Alarcón, Andrea Bellavia, Audrey J. Gaskins, Jorge E. Chavarro, Jennifer B. Ford, Irene Souter, Antonia M. Calafat, Russ Hauser & Paige L. Williams. 2021. Paternal mixtures of urinary concentrations of phthalate metabolites, bisphenol A and parabens in relation to pregnancy outcomes among couples attending a fertility center.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: In 210 couples undergoing 300 IVF cycles, paternal urinary biomarkers of BPA, parabens and phthalates were analyzed as mixtures in relation to implantation, pregnancy and live birth. The prospective fertility-center study evaluated associations rather than demonstrating causation.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00332. DOI/link: 10.1016/j.envint.2020.106171

Siyan ZHAO, Zhengmeng WANG, Hongxia DENG, Jiahui DUAN, Jinyi WANG & Shuhui LIU. 2026. Perfume is a Major Source of Phthalates 3000px web.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00333.

Alexa Friedman, Barrett M. Welch, Alexander P. Keil, Michael S. Bloom, Joseph M. Braun, Jessie P. Buckley, Dana Dabelea, Pam Factor-Litvak, John D. Meeker, Karin B. Michels, Vasantha Padmanabhan, Anne P. Starling, Clarice R. Weinberg, Jenny Aalborg, Akram N. Alshawabkeh, Emily S. Barrett, Alexandra M. Binder, Asa Bradman, Nicole R. Bush, Antonia M. Calafat, David E. Cantonwine, Kate E. Christenbury, José F. Cordero, Stephanie M. Engel, Brenda Eskenazi, Kim G. Harley, Russ Hauser, Julie B. Herbstman, Nina Holland, Tamarra James-Todd, Anne Marie Z. Jukic, Bruce P. Lanphear, Thomas F. McElrath, Carmen Messerlian, Roger B. Newman, Ruby H.N. Nguyen, Katie M. O'Brien, Virginia A. Rauh, J. Bruce Redmon, David Q. Rich, Emma M. Rosen, Sheela Sathyanarayana, Rebecca J. Schmidt, Amy E. Sparks, Shanna H. Swan, Christina Wang, Deborah J. Watkins, Barry Weinberger, Abby G. Wenzel, Allen J. Wilcox, Kimberly Yolton, Yu Zhang, Ami R. Zota & Kelly K. Ferguson. 2026. Periods of susceptibility for associations between phthalate exposure and preterm birth - Results from a pooled analysis of 16 US cohorts.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Buckley f,1, Dana Dabelea g,1, Pam Factor-Litvak h,1, John D. Michels j,1, Vasantha Padmanabhan k,1, Anne P.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00334. DOI/link: 10.1016/j.envint.2025.109392

Leila Arfaeina, Sina Dobaradaran, Farzaneh Nasrzadeh, Shiva Shamsi, Yousef Poureshgh & Hossein Arfaeina. 2020. Phthalate acid esters (PAEs) in highly acidic juice packaged in polyethylene terephthalate (PET) container - Occurrence, migration and estrogenic activity-associated risk assessment.

Design: Occurrence, migration, source or exposure study.

Findings: PAEs were measured in acidic beverages packaged in PET. DEHP was the major compound, with medians of 8.1, 10.5 and 9.8 µg/L in lemon juice, verjuice and vinegar; concentrations increased with storage time and temperature in the tested products.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00335. **DOI/link:** 10.1016/j.microc.2020.104719

Jingwei Liu, Junchao Shi, Rebecca Hernandez, Xiuchun Li, Pranav Konchadi, Yuma Miyake, Qi Chen, Tong Zhou & Changcheng Zhou. 2023. Paternal phthalate exposure-elicited offspring metabolic disorders are associated with altered sperm small RNAs in mice.

Design: Experimental animal toxicology or mechanistic study.

Findings: In mice, paternal DCHP exposure produced insulin resistance and altered insulin signaling/transcriptomes in F1 offspring and changed sperm small-RNA profiles; the authors also reported transgenerational effects in F2. This is an experimental mouse study and does not establish effects at ordinary human exposure.

Risk relevance: Defines experimental hazard/mechanism; human risk requires comparison of species, route, dose and exposure window.

Key limitations: Animal model, dose and endpoint are study-specific; translation to human exposure requires toxicokinetic and dose-response context.

Catalogue ID: PHT-00336. **DOI/link:** 10.1016/j.envint.2023.107769

Lisa Fay Coutley. 2026. Plastic exposure damages metabolic function for two generations, find researchers.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00337.

Source author not identified in online metadata. 2026. ToxicityReviewOfDCHP.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: identification, that is, a review of the available toxicity data for the chemical under consideration and a determination of whether the chemical is considered “toxic”. If it is concluded that a substance is “toxic” due to chronic toxicity, then a quantitative assessment of exposure and risk is performed to evaluate whether the chemical may be considered a “hazardous substance”. This memo represents the first step in the risk assessment process; that is, the hazard identification step.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization’s assessment framework.

Catalogue ID: PHT-00338.

Aristidis M. Tsatsakis, Ioanna Katsikantami, Olga-Ioanna Kalantzi, Çiğdem Sevim, Konstantinos Tsarouhas, Dimosthenis Sarigiannis, Manolis N. Tzatzarakis & Apostolos K. Rizos. 2026. Phthalates - Health Effects, Detection and Exposure Prevention.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: This is an edited technical/scientific volume covering phthalate toxicology, analytical detection and exposure-prevention topics. It is a secondary reference source rather than a single experimental study.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00339.

Lariah Edwards, Nathan L. McCray, Brianna N. VanNoy, Alice Yau, Ruth J. Geller, Gary Adamkiewicz & Ami R. Zota. 2022. Phthalate and novel plasticizer concentrations in food items from U.S. fast food chains - a preliminary analysis.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates and replacement plasticizers were measured in foods from U.S. fast-food chains. The study documented the presence of legacy and replacement plasticizers in sampled foods; it was a preliminary occurrence study and did not measure health outcomes.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00340. DOI/link: 10.1038/s41370-021-00392-8

Hanno C. Erythropel, Milan Maric, Jim A. Nicell, Richard L. Leask & Viviane Yargeau. 2026. Leaching of the plasticizer di(2-ethylhexyl)phthalate (DEHP) from plastic containers and the question of human exposure.

Design: Occurrence, migration, source or exposure study.

Findings: Di(2-ethylhexyl)phthalate (DEHP) is a widely used of DEHP exposure is still evolving.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00341. DOI/link: 10.1007/s00253-014-6183-8

Xiangqin Xu, Gang Zhou, Kun Lei, Gerald A. LeBlanc & Lihui An. 2026. Phthalate Esters and Their Potential Risk in PET Bottled Water Stored under Common Conditions.

Design: Occurrence, migration, source or exposure study.

Findings: A great deal of attention has been paid lately to release of phthalate esters (PAEs) from polyethylene terephthalate (PET) bottles into PET bottled drinking water due to their potential endo

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00342. DOI/link: 10.3390/ijerph17010141

Branslav Kolena, Ida Petrovicova, Tomas Pilka, Zuzana Pucherova, Michal Munk, Bohumil Matula, Viera Vankova, Peter Petlus, Zita Jenisova, Zdenka Rozova, Sona Wimmerova & Tomas Trnovec. 2026. Phthalate Exposure and Health-Related Outcomes in Specific Types of Work Environment.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00343. DOI/link: 10.3390/ijerph110605628

Evangelia E. Antoniou & Rainer Otter. 2026. Phthalate Exposure and Neurotoxicity in Children - A Systematic Review and Meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Antoniou 1* and Rainer Otter 2 1 MetaAnalyses.com, Hees, Belgium, 2Industrial Petrochemicals Europe, BASF SE, Ludwigshafen, Germany Objectives: This systematic review aims to assess the relationship between prenatal and childhood exposure to phthalates and neurodevelopmental outcomes, identifying periods of heightened susceptibility. Data sources considered studies examining repeated phthalate exposure during pregnancy and childhood on neurodevelopment.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00344. DOI/link: 10.3389/ijph.2024.1606802

Raymond M. David. 2026. Phthalate exposure Bloomberg.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00345.

Jiufeng Li, Wei Xia, Chuansha Wu, Hongzhi Zhao, Yanqiu Zhou, Juntong Wei, Fenfen Ji, Hemi Luan, Shunqing Xu & Zongwei Cai. 2026. Phthalate Exposure Decreased Over Time.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00346.

Victoria M. Pak, Linda A. McCauley & Jennifer Pinto-Martin. 2011. Phthalate Exposures and Human Health Concerns A Review and Implications for Practice.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review states that high phthalate exposures have been associated with adverse male fetal reproductive development and that animal studies consistently demonstrate reproductive effects, while noting that additional human epidemiology is needed to characterize human risk.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00347. DOI/link: 10.3928/08910162-20110426-01

Maricel V. Maffini, Birgit Geueke, Ksenia Groh, Bethanie Carney Almroth & Jane Muncke. 2026. Role of epidemiology in risk assessment - a case study of five ortho-phthalates.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Background: The association between environmental chemical exposures and chronic diseases is of increasing concern. Chemical risk assessment relies heavily on pre-market toxicity testing to identify safe levels of exposure, often known as reference doses (RfD), expected to be protective of human health.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00348. DOI/link: 10.1186/s12940-021-00799-8

Germaine M. Buck Louis, Rajeshwari Sundaram, Anne M. Sweeney, Enrique F. Schisterman, José Maisog & Kurunthachalam Kannan. 2014. Urinary bisphenol A, phthalates, and couple fecundity- the Longitudinal Investigation of Fertility and the Environment (LIFE) Study.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: The LIFE Study prospectively followed 501 couples after discontinuing contraception and measured environmental chemicals in both partners to evaluate time to pregnancy. This design assessed couple fecundity prospectively rather than using a cross-sectional fertility endpoint.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00349. DOI/link: 10.1016/j.fertnstert.2014.01.022

Jin Qin, Ruihua Dong, Min Wu, Yaqun Yuan, Han Zhang, Pai Meng, Meiru Zhang, Jingsi Chen, Shuguang Li & Bo Chen. 2026. Phthalate Exposure Low Decreasing and From Personal Care Products 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00350.

Sonia Hernández-Díaz, Yung-Cheng Su, Allen A. Mitchell, Katherine E. Kelley, Antonia M. Calafat & Russ Hauser. 2026. Medications as a Potential Source of Exposure to Phthalates among Women of Childbearing Age.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00351. DOI/link: 10.1016/j.reprotox.2013.01.001

Sonia Hernández-Díaz, Allen A. Mitchell, Katherine E. Kelley, Antonia M. Calafat & Russ Hauser. 2026. Medications as a potential source of exposure to phthalates in the U.S. population.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Research Medications as a Potential Source of Exposure to Phthalates in the U.S.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00352. DOI/link: 10.1289/ehp.11766

Thomas P Ahern, Logan G Spector, Per Damkier, Buket Öztürk Esen, Sinna P Ulrichsen, Katrine Eriksen, Timothy L Lash, Henrik Toft Sørensen & Deirdre P Cronin-Fenton. 2026. Medication–Associated Phthalate Exposure and Childhood Cancer Incidence.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Ulrichsen, MS,6 Katrine Eriksen, MS,6 Timothy L. Lash, DSc, MPH,6,7 6 6 Henrik Toft Sørensen, MD, PhD, DMSc, Deirdre P.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00353. DOI/link: 10.1093/jnci/djac045

Elizabeth D. Kantor & Megan E. Romano. 2026. Phthalate Exposure From Prescription Medications and Breast Cancer Risk.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: editorial Phthalate Exposure From Prescription Medications and Breast Cancer Risk Elizabeth D. Romano, PhD, MPH2,3 In the article that accompanies this editorial, Ahern misclassification is possible because of exposure et al1 used a linkage of Danish registries to evaluate the from other sources (such as vinyl flooring in homes association between exposure to phthalates via preor use of personal care products), this approach is scription drugs and breast cancer risk.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00354. DOI/link: 10.1200/JCO.19

Kellyn S. Betts. 2026. Phthalates in Prescription Drugs - Some Medications Deliver High Doses.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Environews | Science Selections Phthalates in Prescription Drugs samples were tested for phthalate metabolites and participants were asked about their use of prescription medications.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00355.

Michael A. Babich, Charles Bevington & Matthew A. Dreyfus. 2026. Phthalate migration from soft PVC toys and child-care articles.

Design: Occurrence, migration, source or exposure study.

Findings: EU Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) Phthalate migration from soft PVC toys and child-care articles Opinion expressed at the CSTEE third plenary meeting Brussels, 24 April 1998 1.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00356.

Samantha Serrano*, Joseph Braun, Leonardo Trasande & Sheela Sathyanarayana. 2026. Phthalates and diet - a review of the food monitoring and epidemiology data.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Phthalates are associated with a variety of health outcomes, but sources that may be targeted for exposure reduction messaging remain elusive. Diet is considered a significant exposure pathway for these compounds.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00357.

Wendee Nicole. 2026. Phthalates and Childhood Body Fat - Study Finds No Evidence of Obesogenicity.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00358. DOI/link: 10.1289/ehp.124-A78

Jessie P. Buckley, Stephanie M. Engel, Michelle A. Mendez, David B. Richardson, Julie L. Daniels, Antonia M. Calafat, Mary S. Wolff & Amy H. Herring. 2026. Prenatal Phthalate Exposures and Childhood Fat Mass in a New York City Cohort.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Prenatal Phthalate Exposures and Childhood Fat Mass in a New York City Cohort Jessie P.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00359. DOI/link: 10.1289/ehp.1509788

John D. Meeker, Sheela Sathyanarayana & Shanna H. Swan. 2026. Phthalates and other additives in plastics - human exposure and associated health outcomes.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Meeker1, *, Sheela Sathyanarayana2 and Shanna H.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00360. DOI/link: 10.1098/rstb.2008.0268

Yufei Wang & Haifeng Qian. 2026. Phthalates and Their Impacts on Human Health.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Phthalates are a series of widely used chemicals that demonstrate to be endocrine disruptors and are detrimental to human health. Phthalates can be found in most products that have contact with plastics during producing, packaging, or delivering. Despite the short half-lives in tissues, chronic exposure to phthalates will adversely influence the endocrine system and functioning of multiple organs, which has negative long-term impacts on the success of pregnancy, child growth and development, and reprod

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00361. DOI/link: 10.3390/healthcare9050603

Mehrnoosh Abtahi, Sina Dobaradaran, Marzieh Torabbeigi, Sahand Jorfi, Reza Gholamnia, Ali Koolivand, Hossein Darabi, Amir Kavousi & Reza Saeedi. 2026. Health risk of phthalates in water environment - Occurrence in water resources, bottled water, and tap water, and burden of disease from exposure through drinking water in tehran, Iran.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00362. **DOI/link:** 10.1016/j.envres.2019.03.071

Cristina Bach, Christophe Rosin, Jean-François Munoz & Xavier Dauchy. 2026. National screening study investigating nine phthalates and one adipate in raw and treated tap water in France.

Design: Occurrence, migration, source or exposure study.

Findings: The goal of this study was to determine the potential exposure of much of the French population to nine phthalates and bis (2- ethylhexyl) adipate (DEHA) due to water consumption.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00363. **DOI/link:** 10.1007/s11356-020-09680-6

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2026. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water i.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00364. **DOI/link:** 10.1016/j.jhazmat.2020.124891

N. Domínguez-Morueco, S. González-Alonso & Y. Valcárcel. 2026. Phthalate occurrence in rivers and tap water from central Spain.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates were detected in river and tap water from Central Spain for first time.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00365. **DOI/link:** 10.1016/j.scitotenv.2014.08.098

Ami R. Zota, Ruth J. Geller, Antonia M. Calafat, Cherie Q. Marfori, Andrea A. Baccarelli & Gaby N. Moawad. 2026. Phthalates exposure and uterine fibroid burden among women undergoing surgical treatment for fibroids - a preliminary study.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Objectives.—To examine the association between phthalates ex

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00366. **DOI/link:** 10.1016/j.fertnstert.2018.09.009

Yu Wang, Hongkai Zhu & Kurunthachalam Kannan. 2019. A Review of Biomonitoring of Phthalate Exposures.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes human biomonitoring approaches and urinary phthalate metabolite data, emphasizing that urinary metabolites are the standard markers for recent exposure and that interpretation depends on timing, metabolism and study design.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00367. **DOI/link:** 10.3390/toxics7020021

Source author not identified in online metadata. 2026. Exposure Routes Compared.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00368.

Source author not identified in online metadata. 2026. Phthalates from Medicines 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00369.

Harold Shellow. 2026. Phthalates from Perfumes and Nail Polish 2025.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00370.

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2026. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00371.

Nordic Council of Ministers. 2026. Phthalates in PVC Pipe Hazardous Substances in Plastic Materials COWI-Denmark 2012.

Design: Occurrence, migration, source or exposure study.

Findings: Hazardous substances in plastic TA 3017 materials 2013 Prepared by COWI in cooperation with Danish Technological Institute Preface This report is developed within the project of mapping of prioritized hazardous substances in plastic materials. The aim of the report is to be a brief handbook on plastic types and hazardous substances in plastics providing knowledge on the characteristics and use of different plastic materials and the function, uses, concentration, release patterns, and alternatives of the hazardous substances, allowing the user to use the report as an

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00372.

Robert Benson. 2026. Hazard to the developing male reproductive system from cumulative exposure to phthalate esters—dibutyl phthalate, diisobutyl phthalate, butylbenzyl phthalate, diethylhexyl phthalate, dipentyl phthalate, and diisononyl phthalate.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00373. DOI/link: 10.1016/j.yrtph.2008.11.005

Jin Qin, Ruihua Dong, Min Wu, Yaqun Yuan, Han Zhang, Pai Meng, Meiru Zhang, Jingsi Chen, Shuguang Li & Bo Chen. 2026. Phthalate Exposure Low Decreasing and From Personal Care Products 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00374.

Source author not identified in online metadata. 2026. Phthalates from Medicines 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00375.

Harold Shellow. 2026. Phthalates from Perfumes and Nail Polish 2025.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00376.

Source author not identified in online metadata. 2026. Risk from Phthalates 2025 Web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00377.

S. Saeidnia & Trudi Denoon. 2026. Phthalates Slides.

Design: Occurrence, migration, source or exposure study.

Findings: PHTHALATE EXPOSURE “In this study, data showed that four individual phthalates (DEHP, DEP, DBP, and BBP) were present in cosmetics. Of these phthalates, DEP was found to be present in highest concentrations in perfumes and deodorants, whereas DBP was the highest in nail polishes.” “DBP was detected in 19 of the 21 nail polishes and in 11 of the 42 perfumes, and DEP was detected in 24 of the 42 perfumes and 2 of the 8 deodorants.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00378.

S. Saeidnia & Trudi Denoon. 2026. Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: Perfumes contain high concentrations and are especially worrying because they are sprayed directly on the skin and absorbed rapidly.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00379.

U.S. Environmental Protection Agency. 2026. phthalates actionplan revised 2012-03-14.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Phthalates are produced in high volume, over 470 million pounds per year (EPA 2006).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00380.

Mouen A. Khashab. 2026. phthalates updates live file 508 0.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00381.

Plastics Research Council. 2026. Plastics Research Council Phthalates and BPA Letter 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The study claims to have uncovered a new, previously unrecognized threat from synthetic chemicals exposure via food processing and packaging.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00382.

Rouse da Silva Costa, Tatiana Sainara Maia Fernandes, Edmilson de Sousa Almeida, Juliene Tomé Oliveira, Jhonyson Arruda Carvalho Guedes, Guilherme Julião Zocolo, Francisco Wagner de Sousa & Ronaldo Ferreira do Nascimento. 2026. Potential risk of BPA and phthalates in commercial water bottles - a minireview.

Design: Occurrence, migration, source or exposure study.

Findings: The global water bottling market grows annually. Today, to ensure consumer safety, it is important to Rouse da Silva Costa Tatiana Sainara Maia Fernandes (corresponding verify the possible migration of compounds from bottles into the water contained in them. Potential author) Edmilson de Sousa Almeida health risks due to the prevalence of bisphenol A (BPA) and phthalates (PAEs) exposure through Juliene Tomé Oliveira Jhonyson Arruda Carvalho Guedes water bottle consumption have become an important issue.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00383. DOI/link: 10.2166/wh.2021.202

Dong-Wook Lee, Hyun-Mook Lim, Joong-Yub Lee, Kyung-Bok Min, Choong-Ho Shin, Young-Ah Lee & Yun-Chul Hong. 2026. Prenatal exposure to phthalate and decreased body mass index of children - a systematic review and meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Phthalates are well-known endocrine-disrupting chemicals. Many detrimental health effects of phthalates were investigated, but studies on the association of phthalates with obesity in children showed inconsistent results. Thus, this systematic review and meta-analysis was performed to clarify whether prenatal and postnatal exposures to phthalates are associated with physical growth disturbances in children.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00384. DOI/link: 10.1038/s41598-022-13154-9

Leonardo Trasande, Morgan E Nelson, Akram Alshawabkeh, Emily S Barrett, Jessie P Buckley, Dana Dabelea, Anne L Dunlop, Julie B Herbstman, John D Meeker, Mrudula Naidu, Craig Newschaffer, Amy M Padula, Megan E Romano, Douglas M Ruden, Sheela Sathyanarayana, Susan L Schantz, Anne P Starling, Ghassan B Hamra, PB Smith, KL Newby, LP Jacobson, DJ Catellier, R Gershon, D Cella, J Cordero, F Tyllavsky, A Mason, Q Zhao, N Bush, KZ LeWinn, K Lyall, H Volk, R Schmidt, JM Kerver, C Barone, C Fussman, N Paneth, M Elliott, R Nguyen, S Swan & C Karr. 2026. Prenatal phthalate exposure and adverse birth outcomes in the USA - a prospective analysis of births and estimates of attributable burden and costs.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Phthalates are synthetic chemicals widely used in consumer products and have been identified to Lancet Planet Health 2024; contribute to preterm birth.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00385.

C. Barry Carter. 2026. pvcmed-hcwh-june-2023-position-paper phthalate plasticizer.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Position Paper June 2023 Towards More Sustainable Healthcare: The European PVC Industry's Response to Environmental Concerns Over the past two decades, the European PVC industry has demonstrated a strong commitment to environmental stewardship, sustainability, and safety. This commitment is deeply rooted in our understanding and acknowledgement of the valid concerns raised by NGOs such as Healthcare Without Harm.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00386.

Paola Pocar, Valeria Grieco, Lucia Aidos & Vitaliano Borromeo. 2026. Endocrine-Disrupting Chemicals and Their Effects in Pet Dogs and Cats - An Overview.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00387. DOI/link: 10.3390/ani13030378

Chris DeArmitt. 2026. Reduced-Plastics Distraction Microplastics and Phthalates June 2025 copy.

Design: Materials / plasticizer study or technical source.

Findings: Chris DeArmitt is an internationally recognized scientist, author, and thought leader in materials science, known for his relentless commitment to uncovering and communicating the truth about plastics, microplastics and their environmental impact. With a career spanning decades and grounded in rigorous, peer-reviewed research, Dr.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00388.

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2026. Ref 73 Transfer of phthalates from c-polyvinyl chloride and PEX.

Design: Occurrence, migration, source or exposure study.

Findings: 588 © IWA Publishing 2017 Water Science & Technology: Water Supply | 17.2 | 2017 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically, yet the Philip N.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00389. DOI/link: 10.2166/ws.2016.164

Qiong Luo, Ze-hua Liu, Hua Yin, Zhi Dang, Ping-xiao Wu, Neng-wu Zhu, Zhang Lin & Yu Liu. 2026. Reference 113 Migration and potential risk of trace phthalates in bottled water - A global situation.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00390. DOI/link: 10.1016/j.watres.2018.10.002

Source author not identified in online metadata. 2026. Risk from Phthalates 2025 Web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00391.

Naomi Lubick. 2026. Running Phthalates to Ground - Pinpointing Exposure Sources in a Virtual Home.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: News | Science Selections Running Phthalates to Ground the model to explore the relative importance of inhalation of vapor, inhalation of particles, dermal sorption of DEHP, and oral ingestion Pinpointing Exposure Sources in a Virtual Home of household dust on total exposure levels. To test which parameters might change the amount of total DEHP exposure through different Methods to measure concentrations of chemicals in adults and routes, the researchers varied model parameters such as the amount of children, a science known as biomonitoring, can be costly and ventilation and velocity of air moving through their model house.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00392.

Cosmetic Ingredient Review Expert Panel. 2026. Safety-Assessment-of-Di(2-ethylhexyl)phthalate-(DEHP)-Released-from-PVC-Medical-Devices.

Design: Occurrence, migration, source or exposure study.

Findings: Safety Assessment of Di(2-ethylhexyl)phthalate (DEHP) Released from PVC Medical Devices Center for Devices and Radiological Health U.S.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00393.

Raj Narayan Roy. 2026. Bioactive natural derivatives of phthalate ester.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00394. DOI/link: 10.1080/07388551.2020.1789838

Thies Thiemann. 2026. Isolation of Phthalates and Terephthalates from Plant Material – Natural Products or Contaminants?.

Design: Materials / plasticizer study or technical source.

Findings: Dialkyl phthalates have been used as plasticizers in polymers for decades. As mobile, small weight molecules, phthalates have entered the environment, where they have become ubiquitous.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00395. DOI/link: 10.2174/1874842202108010001

Huawei Zhang, Yi Hua, Jianwei Chen, Xiuting Li, Xuelian Bai & Hong Wang. 2026. Organism-derived phthalate derivatives as bioactive natural products.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00396. **DOI/link:** 10.1080/10590501.2018.1490512

S. P. Mathur. 2026. Phthalate Esters in the Environment - Pollutants or Natural Products?.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: rate is expected to increase tenfold in less than 30 years (6). The solid waste reported to be present in biological, geochemical, and hydrological from such uses amounts to 4.31 billion kg/year in the samples. Since indication exists that some PAEs may be toxic to USA; a 2.5-fold increase over 1966 (69).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00397.

Ling Huang, Xunzhi Zhu, Shixing Zhou, Zhenrui Cheng, Kai Shi, Chi Zhang & Hua Shao. 2026. Phthalic Acid Esters - Natural Sources and Biological Activities.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00398. **DOI/link:** 10.3390/toxins13070495

Sabine Oskar, Julia Mook, Michelle K. Smith, Xinying Huang & Jasmine A. McDonald. 2026. Temporal trends in phthalate metabolite exposure of girls in the United States across sociodemographic factors and intersectional social identities - National Health and Nutrition Examination Survey (NHANES) 2001-2018.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00399. **DOI/link:** 10.1016/j.envres.2024.119755

TERA. 2026. TERA Task17 Report Phthalates and ASTM Elements in Manufactured Fibers.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The TERA Center performed this research to summarize available information on the production of specified undyed manufactured fibers (Table 1) regarding the possibility of these fibers, or their typical colorants, containing certain phthalates at concentrations greater than 0.1 percent (1000 parts per million, or ppm) or specified el

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00400.

Chris F. Wilkinson & James C. Lamb. 2026. The potential health effects of phthalate esters in children's toys- a review and risk assessment.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Lamb IV Jellinek, Schwartz & Connolly, Inc., 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00401.

Pedro Tadeu, Maria do Céu Ribeiro, Mehmet Kaya, Mithat Takunyacı, Janete Rosa da Fonseca & David Arenas Carmona. 2026. Three CNN reporters on three continents BPA Phthalate Wristband.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Three CNN reporters on three continents wore chemical-tracking wristbands. The results were alarming By Laura Paddison Jessie Yeung Bill Weir Chief Climate Correspondent Oct 7, 2025 CNN The wristbands arrive from a lab in the Czech Republic encased in a small silver tin.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00402.

Bruce G. Hammond, George J. Levinskas, Ellen C. Robinson & Frederick R. Johannsen. 2026. Toxicity Review Of DnOP Phthalate NOAEL.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: quantitative assessment of exposure and risk is performed to evaluate whether the chemical may be considered a “hazardous substance” under the FHSA. This memo represents the first step in the risk assessment process; that is, the hazard identification step. * These comments are those of the CPSC staff, have not been reviewed or approved by, and may not necessarily represent the views of, the Commission.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization’s assessment framework.

Catalogue ID: PHT-00403.

Abiodun Odunlami Adegunwa, Aderibigbe Kola Adegunwa & Rokeebat Motunrayo Oyatoyinbo. 2026. Toxicological exposure to phthalates mixtures and human health risk assessment of drinking water and fruit drinks packaged in plastics and tetra pak cartons.

Design: Occurrence, migration, source or exposure study.

Findings: Background: This study estimates the migration and levels of phthalate esters in drinking water and fruit drinks packed in plastics and tetra pak cartons that are regularly available for consumption in Nigeria. The probable human health risk from the long-term consistent ingestion of the drinking water and fruit drinks products were also investigated.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00404. DOI/link: 10.1186/s42269-022-00878-x

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2026. Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water.

Design: Occurrence, migration, source or exposure study.

Findings: Uncorrected Proof 1 © IWA Publishing 2016 Water Science & Technology: Water Supply | in press | 2016 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00405. DOI/link: 10.2166/ws.2016.164

Brian S. Middleditch, Stephen R. Missler & Harry B. Hines. 2026. TURI Report. Phthalate Esters. 2017.

Design: Materials / plasticizer study or technical source.

Findings: Toxics Use Reduction Act CERCLA Phthalate Ester Category MA TURA Science Advisory Board Review Toxics Use Reduction Institute December 2016 TURI Report 2017-001 All rights to this report belong to the Toxics Use Reduction Institute. The material may be duplicated with permission by contacting the Institute.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00406.

Caroline M. Anastasia, Savannah G. Phillips, Zachary T. Kralles, Caroline B. Lee, Elias E. Buurma, Carsten Prasse & D. Howard Fairbrother. 2026. Unexpected Reactivity of Commercially Relevant Phthalates with Free Chlorine.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates are the most prevalent plasticizers in poly(vinyl chloride) (PVC), the most commonly used polymer for drinking water distribution pipes. Though typically considered inert to the free chlorine necessary for drinking water disinfection, we found that certain commercially relevant phthalates leach from PVC and transform in the presence of free chlorine.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00407. DOI/link: 10.1021/acsestwater.5c00783

J. H. Tanne. 2026. Is It Safe to Heat Food in Plastic? Dangers of Bisphenol A.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00408.

Eastman Chemical Company. 2026. Why Eastman 168 is a non-phthalate plasticizer.

Design: Materials / plasticizer study or technical source.

Findings: Why Eastman 168 is a non-phthalate plasticizer A regulatory memo Contents Science..Use.of.phthalate.esters.under.the.Toxic.Substances.Control.Act. 5 Australian.risk.assessment.recognizes.phthalate.esters.as.ortho-phthalates.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00409.

U.S. Environmental Protection Agency. 2026. www.epa.gov oppt existingchemicals pubs phthalates ap 2009 1230 final.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00410.

Samantha Serrano*, Joseph Braun, Leonardo Trasande & Sheela Sathyanarayana. 2014. Phthalates and diet - a review of the food monitoring and epidemiology data.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Phthalates are associated with a variety of health outcomes, but sources that may be targeted for exposure reduction messaging remain elusive. Diet is considered a significant exposure pathway for these compounds.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00411.

Wendee Nicole. n.d.. Phthalates and Childhood Body Fat - Study Finds No Evidence of Obesogenicity.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00412. DOI/link: 10.1289/ehp.124-A78

Jessie P. Buckley, Stephanie M. Engel, Michelle A. Mendez, David B. Richardson, Julie L. Daniels, Antonia M. Calafat, Mary S. Wolff & Amy H. Herring. 2009. Prenatal Phthalate Exposures and Childhood Fat Mass in a New York City Cohort.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Prenatal Phthalate Exposures and Childhood Fat Mass in a New York City Cohort Jessie P.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00413. DOI/link: 10.1289/ehp.1509788

John D. Meeker, Sheela Sathyanarayana & Shanna H. Swan. 2009. Phthalates and other additives in plastics - human exposure and associated health outcomes.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Meeker1, *, Sheela Sathyanarayana2 and Shanna H.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00414. DOI/link: 10.1098/rstb.2008.0268

Yufei Wang & Haifeng Qian. 1907. Phthalates and Their Impacts on Human Health.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Phthalates are a series of widely used chemicals that demonstrate to be endocrine disruptors and are detrimental to human health. Phthalates can be found in most products that have contact with plastics during producing, packaging, or delivering. Despite the short half-lives in tissues, chronic exposure to phthalates will adversely influence the endocrine system and functioning of multiple organs, which has negative long-term impacts on the success of pregnancy, child growth and development, and reprod

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00415. DOI/link: 10.3390/healthcare9050603

Ami R. Zota, Ruth J. Geller, Antonia M. Calafat, Cherie Q. Marfori, Andrea A. Baccarelli & Gaby N. Moawad. 2020. Phthalates exposure and uterine fibroid burden among women undergoing surgical treatment for fibroids - a preliminary study.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Objectives.—To examine the association between phthalates ex

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00416. DOI/link: 10.1016/j.fertnstert.2018.09.009

Yu Wang, Hongkai Zhu & Kurunthachalam Kannan. 2019. A Review of Biomonitoring of Phthalate Exposures.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: This review summarizes human biomonitoring approaches and urinary phthalate metabolite data, emphasizing that urinary metabolites are the standard markers for recent exposure and that interpretation depends on timing, metabolism and study design.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00417. DOI/link: 10.3390/toxics7020021

Source author not identified in online metadata. n.d.. Exposure Routes Compared.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00418.

Source author not identified in online metadata. 2025. Phthalates from Medicines 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00419.

Harold Shellow. 2025. Phthalates from Perfumes and Nail Polish 2025.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00420.

Sara Hyman, Jonathan Acevedo, Chiara Giannarelli & Leonardo Trasande. 2025. Phthalate exposure from plastics and cardiovascular disease - global estimates of attributable mortality and years life lost Bloomberg Philanthropies.

Design: Materials / plasticizer study or technical source.

Findings: News/communication material; not a primary scientific source.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00421.

Nordic Council of Ministers. 2012. Phthalates in PVC Pipe Hazardous Substances in Plastic Materials COWI-Denmark 2012.

Design: Occurrence, migration, source or exposure study.

Findings: Hazardous substances in plastic TA 3017 materials 2013 Prepared by COWI in cooperation with Danish Technological Institute Preface This report is developed within the project of mapping of prioritized hazardous substances in plastic materials. The aim of the report is to be a brief handbook on plastic types and hazardous substances in plastics providing knowledge on the characteristics and use of different plastic materials and the function, uses, concentration, release patterns, and alternatives of the hazardous substances, allowing the user to use the report as an

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00422.

Robert Benson. 2009. Hazard to the developing male reproductive system from cumulative exposure to phthalate esters—dibutyl phthalate, diisobutyl phthalate, butylbenzyl phthalate, diethylhexyl phthalate, dipentyl phthalate, and diisononyl phthalate.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00423. DOI/link: 10.1016/j.yrtph.2008.11.005

Jin Qin, Ruihua Dong, Min Wu, Yaqun Yuan, Han Zhang, Pai Meng, Meiru Zhang, Jingsi Chen, Shuguang Li & Bo Chen. 2025. Phthalate Exposure Low Decreasing and From Personal Care Products 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00424.

Source author not identified in online metadata. 2025. Phthalates from Medicines 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00425.

Harold Shellow. 2025. Phthalates from Perfumes and Nail Polish 2025.

Design: Occurrence, migration, source or exposure study.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00426.

Source author not identified in online metadata. 2025. Risk from Phthalates 2025 Web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00427.

S. Saeidnia & Trudi Denoon. 1901. Phthalates Slides.

Design: Occurrence, migration, source or exposure study.

Findings: PHTHALATE EXPOSURE “In this study, data showed that four individual phthalates (DEHP, DEP, DBP, and BBP) were present in cosmetics. Of these phthalates, DEP was found to be present in highest concentrations in perfumes and deodorants, whereas DBP was the highest in nail polishes.” “DBP was detected in 19 of the 21 nail polishes and in 11 of the 42 perfumes, and DEP was detected in 24 of the 42 perfumes and 2 of the 8 deodorants.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00428.

S. Saeidnia & Trudi Denoon. 2018. Phthalates.

Design: Occurrence, migration, source or exposure study.

Findings: Perfumes contain high concentrations and are especially worrying because they are sprayed directly on the skin and absorbed rapidly.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00429.

U.S. Environmental Protection Agency. 2012. phthalates actionplan revised 2012-03-14.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Phthalates are produced in high volume, over 470 million pounds per year (EPA 2006).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00430.

Mouen A. Khashab. 2008. phthalates updates live file 508 0(1).

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00431.

Mouen A. Khashab. 2008. phthalates updates live file 508 0(2).

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00432.

Mouen A. Khashab. 2008. phthalates updates live file 508 0.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Biomonitoring | Phthalates Phthalates Phthalates are a class of manufactured chemicals commonly used to increase the flexibility of plastics in a wide array of consumer products.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00433.

Plastics Research Council. 2025. Plastics Research Council Phthalates and BPA Letter 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The study claims to have uncovered a new, previously unrecognized threat from synthetic chemicals exposure via food processing and packaging.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00434.

Plastics Research Council. 2025. Plastics Research Council Phthalates and BPA Letter 2025.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The study claims to have uncovered a new, previously unrecognized threat from synthetic chemicals exposure via food processing and packaging.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00435.

Rouse da Silva Costa, Tatiana Sainara Maia Fernandes, Edmilson de Sousa Almeida, Juliene Tomé Oliveira, Jhonyson Arruda Carvalho Guedes, Guilherme Julião Zocolo, Francisco Wagner de Sousa & Ronaldo Ferreira do Nascimento. 2021. Potential risk of BPA and phthalates in commercial water bottles - a minireview.

Design: Occurrence, migration, source or exposure study.

Findings: The global water bottling market grows annually. Today, to ensure consumer safety, it is important to Rouse da Silva Costa Tatiana Sainara Maia Fernandes (corresponding verify the possible migration of compounds from bottles into the water contained in them. Potential author) Edmilson de Sousa Almeida health risks due to the prevalence of bisphenol A (BPA) and phthalates (PAEs) exposure through Juliene Tomé Oliveira Jhonyson Arruda Carvalho Guedes water bottle consumption have become an important issue.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00436. DOI/link: 10.2166/wh.2021.202

Dong-Wook Lee, Hyun-Mook Lim, Joong-Yub Lee, Kyung-Bok Min, Choong-Ho Shin, Young-Ah Lee & Yun-Chul Hong. 2020. Prenatal exposure to phthalate and decreased body mass index of children - a systematic review and meta-analysis.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Phthalates are well-known endocrine-disrupting chemicals. Many detrimental health effects of phthalates were investigated, but studies on the association of phthalates with obesity in children showed inconsistent results. Thus, this systematic review and meta-analysis were performed to clarify whether prenatal and postnatal exposures to phthalates are associated with physical growth disturbances in children.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00437. DOI/link: 10.1038/s41598-022-13154-9

Leonardo Trasande, Morgan E Nelson, Akram Alshawabkeh, Emily S Barrett, Jessie P Buckley, Dana Dabelea, Anne L Dunlop, Julie B Herbstman, John D Meeker, Mrudula Naidu, Craig Newschaffer, Amy M Padula, Megan E Romano, Douglas M Ruden, Sheela Sathyanarayana, Susan L Schantz, Anne P Starling, Ghassan B Hamra, PB Smith, KL Newby, LP Jacobson, DJ Catellier, R Gershon, D Cella, J Cordero, F Tylavsky, A Mason, Q Zhao, N Bush, KZ LeWinn, K Lyall, H Volk, R Schmidt, JM Kerver, C Barone, C Fussman, N Paneth, M Elliott, R Nguyen, S Swan & C Karr. 2024. Prenatal phthalate exposure and adverse birth outcomes in the USA - a prospective analysis of births and estimates of attributable burden and costs.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: Phthalates are synthetic chemicals widely used in consumer products and have been identified to Lancet Planet Health 2024; contribute to preterm birth.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00438.

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2016. Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water.

Design: Occurrence, migration, source or exposure study.

Findings: Uncorrected Proof 1 © IWA Publishing 2016 Water Science & Technology: Water Supply | in press | 2016 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00439. DOI/link: 10.2166/ws.2016.164

C. Barry Carter. 2023. pvcmed-hcwh-june-2023-position-paper phthalate plasticizer.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Position Paper June 2023 Towards More Sustainable Healthcare: The European PVC Industry's Response to Environmental Concerns Over the past two decades, the European PVC industry has demonstrated a strong commitment to environmental stewardship, sustainability, and safety. This commitment is deeply rooted in our understanding and acknowledgement of the valid concerns raised by NGOs such as Healthcare Without Harm.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00440.

Paola Pocar, Valeria Grieco, Lucia Aidos & Vitaliano Borromeo. n.d.. Endocrine-Disrupting Chemicals and Their Effects in Pet Dogs and Cats - An Overview.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00441. DOI/link: 10.3390/ani13030378

Chris DeArmitt. 2025. Reduced-Plastics Distraction Microplastics and Phthalates June 2025 copy.

Design: Materials / plasticizer study or technical source.

Findings: Chris DeArmitt is an internationally recognized scientist, author, and thought leader in materials science, known for his relentless commitment to uncovering and communicating the truth about plastics, microplastics and their environmental impact. With a career spanning decades and grounded in rigorous, peer-reviewed research, Dr.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00442.

Source author not identified in online metadata. 2025. Risk from Phthalates 2025 Web.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00443.

Naomi Lubick. n.d.. Running Phthalates to Ground - Pinpointing Exposure Sources in a Virtual Home.

Design: Human exposure, biomonitoring or epidemiological study.

Findings: News | Science Selections Running Phthalates to Ground the model to explore the relative importance of inhalation of vapor, inhalation of particles, dermal sorption of DEHP, and oral ingestion Pinpointing Exposure Sources in a Virtual Home of household dust on total exposure levels. To test which parameters might change the amount of total DEHP exposure through different Methods to measure concentrations of chemicals in adults and routes, the researchers varied model parameters such as the amount of children, a science known as biomonitoring, can be costly and ventilation and velocity of air moving through their model house.

Risk relevance: Directly informs human exposure or epidemiologic association; a biomarker or association is not by itself proof of causation.

Key limitations: Interpretation depends on exposure timing, repeated measurement, confounding, co-exposures, population selection and the clinical relevance of the endpoint.

Catalogue ID: PHT-00444.

Cosmetic Ingredient Review Expert Panel. n.d.. Safety-Assessment-of-Di(2-ethylhexyl)phthalate-(DEHP)-Released-from-PVC-Medical-Devices.

Design: Occurrence, migration, source or exposure study.

Findings: Safety Assessment of Di(2-ethylhexyl)phthalate (DEHP) Released from PVC Medical Devices Center for Devices and Radiological Health U.S.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00445.

Raj Narayan Roy. 2020. Bioactive natural derivatives of phthalate ester.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00446. DOI/link: 10.1080/07388551.2020.1789838

Thies Thiemann. 2020. Isolation of Phthalates and Terephthalates from Plant Material – Natural Products or Contaminants?.

Design: Materials / plasticizer study or technical source.

Findings: Dialkyl phthalates have been used as plasticizers in polymers for decades. As mobile, small weight molecules, phthalates have entered the environment, where they have become ubiquitous.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00447. **DOI/link:** 10.2174/1874842202108010001

Huawei Zhang, Yi Hua, Jianwei Chen, Xiuting Li, Xuelian Bai & Hong Wang. 2018. Organism-derived phthalate derivatives as bioactive natural products.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00448. **DOI/link:** 10.1080/10590501.2018.1490512

S. P. Mathur. 1974. Phthalate Esters in the Environment - Pollutants or Natural Products?.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: rate is expected to increase tenfold in less than 30 years (6). The solid waste reported to be present in biological, geochemical, and hydrological from such uses amounts to 4.31 billion kg/year in the samples. Since indication exists that some PAEs may be toxic to USA; a 2.5-fold increase over 1966 (69).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00449.

Ling Huang, Xunzhi Zhu, Shixing Zhou, Zhenrui Cheng, Kai Shi, Chi Zhang & Hua Shao. n.d.. Phthalic Acid Esters - Natural Sources and Biological Activities.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00450. **DOI/link:** 10.3390/toxins13070495

Fatemeh Sadat Kashfi, Azam Mohammadi, Farzaneh Rostami, Arezou Savari, Gabriel E. De-la-Torre, Jörg Spitz, Reza Saeedi, Mohammadreza Kalantarhormozi, Akram Farhadi & Sina Dobaradaran. 2023. Microplastics and phthalate esters release from teabags into tea drink - occurrence, human exposure, and health risks.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00451. **DOI/link:** 10.21203/rs.3.rs-2858483/v1

Sabine Oskar, Julia Mook, Michelle K. Smith, Xinying Huang & Jasmine A. McDonald. 2001. Temporal trends in phthalate metabolite exposure of girls in the United States across sociodemographic factors and intersectional social identities - National Health and Nutrition Examination Survey (NHANES) 2001-2018.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00452. DOI/link: 10.1016/j.envres.2024.119755

TERA. 2016. TERA Task17 Report Phthalates and ASTM Elements in Manufactured Fibers.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The TERA Center performed this research to summarize available information on the production of specified undyed manufactured fibers (Table 1) regarding the possibility of these fibers, or their typical colorants, containing certain phthalates at concentrations greater than 0.1 percent (1000 parts per million, or ppm) or specified el

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00453.

Chris F. Wilkinson & James C. Lamb. 1999. The potential health effects of phthalate esters in children's toys- a review and risk assessment.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: Lamb IV Jellinek, Schwartz & Connolly, Inc., 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00454.

Pedro Tadeu, Maria do Céu Ribeiro, Mehmet Kaya, Mithat Takunyacı, Janete Rosa da Fonseca & David Arenas Carmona. 2025. Three CNN reporters on three continents BPA Phthalate Wristband.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: Three CNN reporters on three continents wore chemical-tracking wristbands. The results were alarming By Laura Paddison Jessie Yeung Bill Weir Chief Climate Correspondent Oct 7, 2025 CNN The wristbands arrive from a lab in the Czech Republic encased in a small silver tin.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00455.

Bruce G. Hammond, George J. Levinskas, Ellen C. Robinson & Frederick R. Johannsen. n.d.. Toxicity Review Of DnOP Phthalate NOAEL.

Design: Review, evidence assessment or regulatory/public-health report.

Findings: quantitative assessment of exposure and risk is performed to evaluate whether the chemical may be considered a "hazardous substance" under the FHSA. This memo represents the first step in the risk assessment process; that is, the hazard identification step. * These comments are those of the CPSC staff, have not been reviewed or approved by, and may not necessarily represent the views of, the Commission.

Risk relevance: Provides evidence synthesis or regulatory context; conclusions depend on the quality, scope and assumptions of the underlying evidence.

Key limitations: Secondary source; inherits limitations, heterogeneity and potential bias of the included evidence or the issuing organization's assessment framework.

Catalogue ID: PHT-00456.

Abiodun Odunlami Adegunwa, Aderibigbe Kola Adegunwa & Rokeebat Motunrayo Oyatoyinbo. 2022. Toxicological exposure to phthalates mixtures and human health risk assessment of drinking water and fruit drinks packaged in plastics and tetra pak cartons.

Design: Occurrence, migration, source or exposure study.

Findings: Background: This study estimates the migration and levels of phthalate esters in drinking water and fruit drinks packed in plastics and tetra pak cartons that are regularly available for consumption in Nigeria. The probable human health risk from the long-term consistent ingestion of the drinking water and fruit drinks products were also investigated.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00457. DOI/link: 10.1186/s42269-022-00878-x

Xiangqin Xu, Gang Zhou, Kun Lei, Gerald A. LeBlanc & Lihui An. 2019. Phthalate Esters and Their Potential Risk in PET Bottled Water Stored under Common Conditions.

Design: Occurrence, migration, source or exposure study.

Findings: A great deal of attention has been paid lately to release of phthalate esters (PAEs) from polyethylene terephthalate (PET) bottles into PET bottled drinking water due to their potential endo

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00458. DOI/link: 10.3390/ijerph17010141

Mehrnoosh Abtahi, Sina Dobaradaran, Marzieh Torabbeigi, Sahand Jorfi, Reza Gholamnia, Ali Koolivand, Hossein Darabi, Amir Kavousi & Reza Saeedi. 2019. Health risk of phthalates in water environment - Occurrence in water resources, bottled water, and tap water, and burden of disease from exposure through drinking water in tehran, Iran.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00459. DOI/link: 10.1016/j.envres.2019.03.071

Cristina Bach, Christophe Rosin, Jean-François Munoz & Xavier Dauchy. 2020. National screening study investigating nine phthalates and one adipate in raw and treated tap water in France.

Design: Occurrence, migration, source or exposure study.

Findings: The goal of this study was to determine the potential exposure of much of the French population to nine phthalates and bis (2- ethylhexyl) adipate (DEHA) due to water consumption.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00460. DOI/link: 10.1007/s11356-020-09680-6

Chenchen Wang, Panpan Huang, Chunsheng Qiu, Jing Li, Shuailong Hu, Liping Sun, Yaohui Bai, Fu Gao, Chaocan Li, Nannan Liu, Dong Wang & Shaopo Wang. 2020. Occurrence, migration and health risk of phthalates in tap water, barreled water and bottled water i.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00461. DOI/link: 10.1016/j.jhazmat.2020.124891

N. Domínguez-Morueco, S. González-Alonso & Y. Valcárcel. 2014. Phthalate occurrence in rivers and tap water from central Spain.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates were detected in river and tap water from Central Spain for first time.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00462. DOI/link: 10.1016/j.scitotenv.2014.08.098

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2016. Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water.

Design: Occurrence, migration, source or exposure study.

Findings: Uncorrected Proof 1 © IWA Publishing 2016 Water Science & Technology: Water Supply | in press | 2016 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00463. DOI/link: 10.2166/ws.2016.164

Brian S. Middleditch, Stephen R. Missler & Harry B. Hines. 2017. TURI Report. Phthalate Esters. 2017.

Design: Materials / plasticizer study or technical source.

Findings: Toxics Use Reduction Act CERCLA Phthalate Ester Category MA TURA Science Advisory Board Review Toxics Use Reduction Institute December 2016 TURI Report 2017-001 All rights to this report belong to the Toxics Use Reduction Institute. The material may be duplicated with permission by contacting the Institute.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00464.

Caroline M. Anastasia, Savannah G. Phillips, Zachary T. Kralles, Caroline B. Lee, Elias E. Buurma, Carsten Prasse & D. Howard Fairbrother. 2025. Unexpected Reactivity of Commercially Relevant Phthalates with Free Chlorine.

Design: Occurrence, migration, source or exposure study.

Findings: Phthalates are the most prevalent plasticizers in poly(vinyl chloride) (PVC), the most commonly used polymer for drinking water distribution pipes. Though typically considered inert to the free chlorine necessary for drinking water disinfection, we found that certain commercially relevant phthalates leach from PVC and transform in the presence of free chlorine.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00465. DOI/link: 10.1021/acsestwater.5c00783

Source author not identified in online metadata. n.d.. Unexpected Reactivity of Commercially Relevant Phthalates with Free Chlorine.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00466.

J. H. Tanne. 2025. Is It Safe to Heat Food in Plastic? Dangers of Bisphenol A.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00467.

Derek R. Faust, Kimberly J. Wooten & Philip N. Smith. 2016. Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water.

Design: Occurrence, migration, source or exposure study.

Findings: Uncorrected Proof 1 © IWA Publishing 2016 Water Science & Technology: Water Supply | in press | 2016 Transfer of phthalates from c-polyvinyl chloride and cross-linked polyethylene pipe (PEX-b) into drinking water Derek R. Wooten In recent years, the use of cross-linked polyethylene (PEX) pipe has increased dramatically.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PHT-00468. DOI/link: 10.2166/ws.2016.164

Eastman Chemical Company. 2008. Why Eastman 168 is a non-phthalate plasticizer.

Design: Materials / plasticizer study or technical source.

Findings: Why Eastman 168 is a non-phthalate plasticizer A regulatory memo Contents Science..Use.of.phthalate.esters.under.the.Toxic.Substances.Control.Act. 5 Australian.risk.assessment.recognizes.phthalate.esters.as.ortho-phthalates.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PHT-00469.

Related plasticizer context

T. Al-Kadhim, K.A. Jassim & N.K. Abbas. 2020. Combining Plasticizers Retarders and Accelerators.

Design: Materials / plasticizer study or technical source.

Findings: Van Gemert Dirk Reynders Katholieke Universiteit Leuven Faculteit Ingenieurswetenschappen Academiejaar: 2005-2006 Departement: Burgerlijke Bouwkunde Adres en telefoon: Kasteelpark Arenberg 40 – 3001 Heverlee – 016/32 16 54 Naam en voornaam studenten: De Weerd Klaartje Reynders Dirk Titel eindwerk: Combineren van plastificeerders/vertragers en versnellers Korte inhoud eindwerk: De combinatie van plastificeerders/vertragers en versnellers werd bestudeerd met drie mogelijke toepassingen in het achterhoofd: 1) het tegengaan van het vertragend effect van plastificeerders zonder de reologi

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00001.

George Wypych. 2020. Handbook of Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: 13 Eaton Avenue, Norwich, NY 13815, USA © ChemTec Publishing, 2004 ISBN 1-895198-29-1 All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without written permission of

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00002.

George Wypych. 2020. Plasticization and Plasticizer Processes.

Design: Materials / plasticizer study or technical source.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00003.

JEFFREY G. SAVILLE. 2020. Plasticizer Databook.

Design: Materials / plasticizer study or technical source.

Findings: No part of this publication may be reproduced, stored or transmitted in any form or by any means without written permission of

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00004.

Source author not identified in online metadata. 2020. Plasticizers Use and Selection.

Design: Materials / plasticizer study or technical source.

Findings: 11 Plasticizers Use and Selection for Specific Polymers George Wypych ChemTec Laboratories, Inc., Toronto, Canada This chapter will provide information on: • types of plasticizers used • concentration range in practical applications • reasons for their selection • specific mechanisms of plasticizers action • potential effects on other additives used on the polymer properties • typical generic formulations This scheme of data presentation is followed as much as the available literature permits.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00005.

Fulton G. Kitson, Barbara S. Larsen & Charles N. McEwen. 2020. Polymer Additives and Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00006.

Shun Myung Shin, Ho Seok Jeon, Young Han Kim, T Yoshioka & A Okuwaki. 2002. Plasticizer leaching from flexible PVC in low temperature caustic solution.

Design: Occurrence, migration, source or exposure study.

Findings: By separating plasticizer using alkali solution at low temperature, the recycling of PVC and plasticizer is possible. An experimental study using various concentrations of NaOH solutions at different temperatures and processing time shows that treatment with 5 M NaOH solution at 100 C gives a selective separation of the plasticizer without dechlorination of PVC.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00007.

Yanfang Xie, Peter R. Chang, Shujun Wang, Jiugao Yu & Xiaofei Ma. 2011. Preparation and properties of halloysite nanotubes-plasticized Dioscorea opposita Thunb. Starch composites.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00008. DOI/link: 10.1016/j.carbpol.2010.07.039

Shun Myung Shin, Ho Seok Jeon, Young Han Kim, T Yoshioka & A Okuwaki. 2002. Plasticizer leaching from flexible PVC in low temperature caustic solution.

Design: Occurrence, migration, source or exposure study.

Findings: By separating plasticizer using alkali solution at low temperature, the recycling of PVC and plasticizer is possible. An experimental study using various concentrations of NaOH solutions at different temperatures and processing time shows that treatment with 5 M NaOH solution at 100 C gives a selective separation of the plasticizer without dechlorination of PVC.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00009.

Hong-Un Kim, Yun Hyuk Bang, Soo Myung Choi & Kwan Han Yoon. 2008. POSS PET increased mod and strength nucleates and antiplasticizer.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00010. DOI/link: 10.1016/j.compscitech.2008.05.020

Subramanian Iyer & David A. Schiraldi. n.d.. Role of Specific Interactions and Solubility in the Reinforcement of Bisphenol A Polymers with POSS Antiplasticizer in PC Schiraldi.

Design: Materials / plasticizer study or technical source.

Findings: Role of Specific Interactions and Solubility in the Reinforcement of Bisphenol A Polymers with Polyhedral Oligomeric Silsesquioxanes - Macr..

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00011. DOI/link: 10.1021/ma061180l

Sharon Y. Soong, Robert E. Cohen, Mary C. Boyce & Weinong Chen. 2009. The effects of thermomechanical history and strain rate on antiplasticization of PVC POSS antiplasticizer.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00012.

Plastic Failure Labs. 2010. Invoice 130 - Plastic Failure Labs - Vartec PVC Plasticizer Migration.

Design: Occurrence, migration, source or exposure study.

Findings: This is an invoice documenting commissioned PVC plasticizer-migration testing. The invoice itself contains no analytical result and is retained only as provenance for the underlying laboratory work.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00013.

Plastic Failure Labs. 2010. Invoice 130 - Plastic Failure Labs - Vartec PVC Plasticizer Migration.

Design: Occurrence, migration, source or exposure study.

Findings: This is an invoice documenting commissioned PVC plasticizer-migration testing. The invoice itself contains no analytical result and is retained only as provenance for the underlying laboratory work.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00014.

D. Alperstein, D. Knani, A. Goichman & M. Narkis. 2012. Determination of plasticizers efficiency for nylon by molecular modeling.

Design: Occurrence, migration, source or exposure study.

Findings: Polyamides are semicrystalline polymers useful in a wide range of applications in the plastics industry. Some applications require higher flexibility and workability of the polyamides, therefore, plasticizers are added to ease compounding and processing procedures and produce the desired product properties.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00015. DOI/link: 10.1007/s00289-012-0705-2

George Wypych. 2004. Handbook of Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: 13 Eaton Avenue, Norwich, NY 13815, USA © ChemTec Publishing, 2004 ISBN 1-895198-29-1 All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without written permission of

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00016.

Mohammad Reza Rahimpour & Azar Akbari. 2004. Low Hydrocarbon Solubility Polymers - Plasticization-resistant Membranes for Carbon Dioxide Removal from Natural Gas - Thesis.

Design: Materials / plasticizer study or technical source.

Findings: The Dissertation Committee for Rajeev Satish Prabhakar certifies that this is the approved version of the following dissertation: Low Hydrocarbon Solubility Polymers: Plasticization-resistant Membranes for Carbon Dioxide Removal from Natural Gas Committee: Benny D. Fleming Low Hydrocarbon Solubility Polymers: Plasticization-resistant Membranes for Carbon Dioxide Removal from Natural Gas by Rajeev Satish Prabhakar, B.Tech.(Hons), M.S.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00017.

Ewa Langer, Sylwia Waśkiewicz, Marta Lenartowicz-Klik & Krzysztof Bortel. 2015. Application of waste poly(ethylene terephthalate) in the synthesis of new oligomeric plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00018. DOI/link: 10.1016/j.polymdegradstab.2015.04.031

B. Li, Z.-W. Wang, Q.-B. Lin, C.-Y. Hu, Q.-Z. Su & Y.-M. Wu. 2015. Determination of Polymer Additives-Antioxidants, Ultraviolet Stabilizers, Plasticizers and Photoinitiators in Plastic Food Package by Accelerated Solvent Extraction Coupled with High-Performance Liquid Chromatography.

Design: Materials / plasticizer study or technical source.

Findings: /53/6/1026/592884 by guest on 12 March 2020 *Author to whom

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00019. DOI/link: 10.1093/chromsci/bmu159

N. Lardjane & N. Belhaneche-Bensemra. 2021. Migration of additives in simulated landfills and soil burial degradation of plasticized PVC.

Design: Occurrence, migration, source or exposure study.

Findings: Commercial sunflower oil was epoxidized, was followed as a function of time. On the other hand, the and epoxidized sunflower oil (ESO) was used as a thermal ageing of the PVC samples was investigated in a landfill stabilizer for polyvinyl chloride (PVC).

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00020. DOI/link: 10.1002/app.29104

Irajá do Nascimento Filho, Carin von Mühlen, Patricia Schossler & Elina Bastos Caramão. 2021. Identification of some plasticizers compounds in landfill leachate.

Design: Occurrence, migration, source or exposure study.

Findings: In this work it was described a simple method for extraction of plasticizer compounds (mainly phthalate esters and bisphenol A (BPA)) from landfill leachate samples.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00021.

Ivo Mersiowsky. 2021. Fate of PVC polymer, plasticizers, and stabilizers in landfilled waste.

Design: Materials / plasticizer study or technical source.

Findings: Fate of PVC Polymer, Plasticizers, and Stabilizers in Landfilled Waste N O MERSIOWSKY TUHH Technologich GmbH WTech) Integrated Management Schellerdamm 4, D-21079 Hamburg, Germany End-of-life PVC products are predominantly disposed of with construction waste or with municipal solid waste in sanitary landfills.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00022.

Edwin Azwar & Minna Hakkarainen. 2012. Tuning the Mechanical Properties of Tapioca Starch by Plasticizers, Inorganic Fillers and Agrowaste-Based Fillers.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00023. DOI/link: 10.5402/2012/463298

Bo Yin & Minna Hakkarainen. 2014. Core-shell nanoparticle-plasticizers for design of high-performance polymeric materials with improved stiffness and toughness.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00024. DOI/link: 10.1039/c1jm10624d

Yanfang Xie, Peter R. Chang, Shujun Wang, Jiugao Yu & Xiaofei Ma. 2014. Preparation and properties of halloysite nanotubes - plasticized Dioscorea opposita Thunb. Starch composites.

Design: Chemical, materials or environmental source with potential phthalate relevance.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00025. DOI/link: 10.1016/j.carbpol.2010.07.039

H. Mark. n.d.. Brydson Plastic Materials on Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: More recently there has been interest in titanium coupling agents. The most important of these have the general form (RO)-Ti-(OX-R--Y), typified by isopropyl tri(dioctyl pyrophosphate) titanate: Use of as little as 0.1% of materials of this type on the total formulation can, it is claimed, significantly reduce the viscosity of filled PVC plastisols (see Chapter 12).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00026.

E. D. Vicente, A. Vicente, T. Nunes, A. Calvo, C. del Blanco-Alegre, F. Oduber, A. Castro, R. Fraile, F. Amato & C. Alves. 2019. Household Dust - Loadings and PM10-Bound Plasticizers and Polycyclic Aromatic Hydrocarbons.

Design: Occurrence, migration, source or exposure study.

Findings: Residential dust is recognized as a major source of environmental contaminants, including polycyclic aromatic hydrocarbons.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00027. DOI/link: 10.3390/atmos10120785

V. Tanrattanakul & P. Bunkaew. 2014. Effect of different plasticizers on the properties of bio-based thermoplastic elastomer containing poly(lactic acid) and natural rubber.

Design: Materials / plasticizer study or technical source.

Findings: Bio-based thermoplastic elastomers (TPE) containing natural rubber and poly(lactic acid) were prepared by melt blending in an internal mixer. The blend ratio was 60% of natural rubber and 40% of poly(lactic acid).

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00028. DOI/link: 10.3144/expresspolymlett.2014.43

Gao-Ling Wei, Ding-Qiang Li, Mu-Ning Zhuo, Yi-Shan Liao, Zhen-Yue Xie, Tai-Long Guo, Jun-Jie Li, Si-Yi Zhang & Zhi-Quan Liang. 2015. Organophosphorus flame retardants and plasticizers - Sources, occurrence, toxicity and human exposure.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00029. DOI/link: 10.1016/j.envpol.2014.09.012

Ivo Mersiowsky. n.d.. Fate of PVC polymer, plasticizers, and stabilizers in landfilled waste.

Design: Materials / plasticizer study or technical source.

Findings: Fate of PVC Polymer, Plasticizers, and Stabilizers in Landfilled Waste N O MERSIOWSKY TUHH Technologisc GmbH WTech)Integrated Management Schellerdamm 4,D-21079Hamburg, Germany End-of-life PVC products are predominantly disposed of with construction waste or with municipal solid waste in sanitary landfills.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00030.

I. Fras, P. Cassagnau & A. Michel. 1918. Influence of processing conditions on the leaching of thermal stabilizers from plasticized polyvinyl chloride in the presence of water.

Design: Occurrence, migration, source or exposure study.

Findings: Plasticized PVC formulations for pharmaceutical packaging contain calcium and zinc stearates, which are PVC heat stabilizers. It was found in the literature that these additives can migrate to some aqueous solutions, especially when the pH is alkaline, the best example being sodium bicarbonate solutions.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00031.

BASTONE. 2026. How Do You Stiffen PVC Pipe by Reducing Plasticizer Content - BASTONE.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00032.

Sunil K. Sharma & T. P. Sharma. 1999. The Effect of Flame Retardant Smoke Suppressants on the Char Morphology of Plasticized PVC.

Design: Materials / plasticizer study or technical source.

Findings: Char formation that preserves the structural integrity of the polymer is one of the most efficient methods of reducing its flammability. Enhanced char formation from polymers such as PVC may also be associated with a decrease in smoke production, as is observed when the polymer is modified by a flame retardant smoke suppressant (FRSS) complex. A correlation had been made between the FRSS characteristics and char morphology.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00033.

C. R. Fordyce & I. W. A. Meyer. 2021. Cellulose Acetate plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: Cellulose acetate / plasticizer systems: structure, morphology and dynamics Congyu Bao To cite this version: Congyu Bao. The documents may come from émanant des établissements d'enseignement et de teaching and research institutions in France or recherche français ou étrangers, des laboratoires abroad, or from public or private research centers.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00034.

Patrycja Wojciechowska. 2021. InTech-The effect of concentration and type of plasticizer on the mechanical properties of cellulose acetate butyrate organic inorganic hybrids.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00035.

Mohamed Tahar Benaniba & Valérie Massardier-Nageotte. 2005. Mechanical and Thermal Properties of the Plasticized PVC-ESBO.

Design: Materials / plasticizer study or technical source.

Findings: he thermal and mechanical properties of plasticized PVC with epoxidized soya T bean oil(PVC-ESBO) are studied. The higher activation energies of Ca-Zn, Ba-Zn stabilizers are responsible for the stability of PVC-ESBO.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00036.

Healthy Building Network. 2024. New Study Finds Vinyl Plasticizers a Major Contaminant in Household Dust | Healthy Building Network.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00037.

Chongxing Huang, Xiujie Dang, Ronghua Bei, Yuan Zhao, Cuicui Li, Qiang Chen & Shuangfei Wang. 2018. Effect of SiOx layer on preventing the migration of plasticizer and antioxidant from polyethylene terephthalate films.

Design: Occurrence, migration, source or exposure study.

Findings: Polyethylene terephthalate (PET) is widely used in food packaging, but the processing aids that include materials such as plasticizers and antioxidants may migrate to food, thereby harming the food quality and human health. To develop packaging materials with lesser plasticizer migration and to understand the anti-migration mechanism, a SiOx layer was deposited by plasma-enhanced chemical vapor deposition (PECVD) on a PET substrate to prepare a composite film.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00038. DOI/link: 10.1007/s13726-019-00688-5

Bo Li, Zhi-Wei Wang, Qin-Bao Lin & Chang-Ying Hu. 2016. Study of the Migration of Stabilizer and Plasticizer from Polyethylene Terephthalate into Food Simulants.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00039. DOI/link: 10.1093/chromsci/bmw025

Chongxing Huang, Xiujie Dang, Ronghua Bei, Yuan Zhao, Cuicui Li, Qiang Chen & Shuangfei Wang. 2026. Effect of SiOx layer on preventing the migration of plasticizer and antioxidant from polyethylene terephthalate films.

Design: Occurrence, migration, source or exposure study.

Findings: Polyethylene terephthalate (PET) is widely used in food packaging, but the processing aids that include materials such as plasticizers and antioxidants may migrate to food, thereby harming the food quality and human health. To develop packaging materials with lesser plasticizer migration and to understand the anti-migration mechanism, a SiOx layer was deposited by plasma-enhanced chemical vapor deposition (PECVD) on a PET substrate to prepare a composite film.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00040. DOI/link: 10.1007/s13726-019-00688-5

Bo Li, Zhi-Wei Wang, Qin-Bao Lin & Chang-Ying Hu. 2026. Study of the Migration of Stabilizer and Plasticizer from Polyethylene Terephthalate into Food Simulants.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00041. DOI/link: 10.1093/chromsci/bmw025

Chongxing Huang, Xiujie Dang, Ronghua Bei, Yuan Zhao, Cuicui Li, Qiang Chen & Shuangfei Wang. 2022. Effect of SiOx layer on preventing the migration of plasticizer and antioxidant from polyethylene terephthalate films.

Design: Occurrence, migration, source or exposure study.

Findings: Polyethylene terephthalate (PET) is widely used in food packaging, but the processing aids that include materials such as plasticizers and antioxidants may migrate to food, thereby harming the food quality and human health. To develop packaging materials with lesser plasticizer migration and to understand the anti-migration mechanism, a SiOx layer was deposited by plasma-enhanced chemical vapor deposition (PECVD) on a PET substrate to prepare a composite film.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00042. DOI/link: 10.1007/s13726-019-00688-5

Bo Li, Zhi-Wei Wang, Qin-Bao Lin & Chang-Ying Hu. 2022. Study of the Migration of Stabilizer and Plasticizer from Polyethylene Terephthalate into Food Simulants.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00043. DOI/link: 10.1093/chromsci/bmw025

M. Ekelund, B. Azhdar, M.S. Hedenqvist & U.W. Gedde. 2008. Long-term performance of poly(vinyl chloride) cables, Part 2 - Migration of plasticizer.

Design: Occurrence, migration, source or exposure study.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00044. DOI/link: 10.1016/j.polymdegradstab.2008.05.030

Martin Bonnet & Hasan Kayt. 2014. PLA Plasticizers Strategies – a new innovative approach.

Design: Materials / plasticizer study or technical source.

Findings: PLA Plasticizer Strategies - A New Innovative Approach Innovation Takes Root, Orlando FL.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00045.

Source author not identified in online metadata. n.d.. Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00046.

Composites World editorial staff. 2009. Composites World December 2009 New Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: This is a trade-publication item concerning commercial plasticizer products. the available text is corrupted, so no technical performance or health claim is inferred from the extract; the original article should be consulted if this contextual record is retained.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00047.

ISP Corporation. n.d.. ISP-PCH5347 Flexidone SellSheet VF ISP Plasticizer.

Design: Occurrence, migration, source or exposure study.

Findings: I PLASTICS Flexidone™ Plasticizers Breakthrough performance and processing efficiency for your demanding industrial and specialty applications The Flexidone family of plasticizers represents breakthrough technology in “cold flex” performance of plastics. Depending on your application, it can offer you a great deal more.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00048.

Patrick W. Skelly, Longbo Li & Rebecca Braslau. 2004. Plasticization of PVC.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00049.

T. D. Stark, H. Choi & P. W. Diebel. n.d.. Plasticizer Molecular Weighton Plasticizer Retention in PVC Geomembranes.

Design: Occurrence, migration, source or exposure study.

Findings: Plasticizers are used to make PVC flexible so it can be used as a geomembrane for containment purposes. Plasticizer migration can reduce the flexibility of PVC geomembranes resulting in brittle behaviour.

Risk relevance: Informs source, occurrence or migration. Detection or release under test conditions does not by itself establish a harmful absorbed dose.

Key limitations: Results are specific to the tested matrix, analytical method, contamination controls and storage/contact conditions; source attribution may remain uncertain.

Catalogue ID: PLAST-00050.

Source author not identified in online metadata. 2004. Plasticizers.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00051.

A. Marcilla, S. Garcia & J.C. Garcia-Quesada. n.d.. PVC Plasticizers Table 1.

Design: Materials / plasticizer study or technical source.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00052.

Jan W. Gooch. n.d.. Shore A Hardness Plasticizers in PVC for Mitek.

Design: Materials / plasticizer study or technical source.

Findings: The available record did not contain readable scientific text; no detailed finding is inferred from catalogue metadata alone.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00053.

Krishna Dutt & R. K. Soni. 2013. Synthesis and characterization of polymeric plasticizer from PET waste and its applications in nitrile rubber and nitrile-PVC blend.

Design: Materials / plasticizer study or technical source.

Findings: Polyethylene terephthalate (PET) waste is not performance applications. Each of these performance catbiodegradable; thus, it will create environmental hazards if egories requires a different set of considerations in terms of disposed in landfills.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00054. DOI/link: 10.1007/s13726-013-0148-0

Marius Murariu, Amália Da Silva Ferreira, Mirosław Pluta, Leila Bonnaud, Michaël Alexandre & Philippe Dubois. 2020. MMurariu 2008 Polylactide (PLA)-CaSO₄ composites toughened with low molecular weight and polymeric ester-like plasticizers and related performances.

Design: Materials / plasticizer study or technical source.

Findings: The available source text is incomplete or dominated by bibliographic/webpage metadata. No result is inferred from the corrupted text; the original publication or report should be consulted for detailed findings.

Risk relevance: Provides formulation, materials or plasticizer context; health relevance depends on migration, actual exposure and toxicological potency.

Key limitations: Materials performance or composition does not itself establish human exposure or health risk; applicability is limited to the tested formulation and conditions.

Catalogue ID: PLAST-00055. DOI/link: 10.1016/j.eurpolymj.2008.07.055

Added key sources supplied for the 2026 evidence review

Wang Y, Zhu H, Kannan K. 2019. A Review of Biomonitoring of Phthalate Exposures. *Toxics* 7:21.

Design: Biomonitoring review of urinary and other phthalate biomarkers across populations and time trends.
Reported analytical approach: Review of targeted mass-spectrometry biomonitoring studies, primarily urinary metabolites.

Findings: Urinary phthalate metabolites are widespread, commonly in the tens to hundreds of ng/mL. Diet is a major pathway for higher-molecular-weight phthalates; children often have higher concentrations than adults. U.S. DEHP biomarkers declined over time while DiNP biomarkers increased.

Risk relevance: Establishes exposure distributions and supports source and age-group comparisons; biomonitoring is an exposure measure, not a diagnosis.

Key limitations: Spot urine, short biological half-lives, changing metabolite panels and inter-study laboratory differences limit direct dose comparisons.

Catalogue ID: PHT-00470. DOI/link: <https://doi.org/10.3390/toxics7020021>

Agency for Toxic Substances and Disease Registry (ATSDR). 2022. Toxicological Profile for Di(2-ethylhexyl)Phthalate (DEHP). U.S. Department of Health and Human Services.

Design: Government toxicological profile integrating exposure, toxicokinetic, animal and human evidence.
Reported analytical approach: Evidence synthesis of published studies and regulatory datasets.

Findings: General-population DEHP exposure is typically estimated around 1–30 µg/kg/day. Food contributes about 95% of total oral exposure for adults and children in the cited assessment, with dust making up most of the remainder; for infants and toddlers, food and dust are more comparable. Medical-device exposures can be orders of magnitude higher.

Risk relevance: Provides a benchmark source-apportionment and dose context for comparing ordinary consumer exposure with medical and occupational scenarios.

Key limitations: Estimates depend on age, year, assumptions and the specific DEHP-use scenario; estimates are not direct measurements for every person.

Catalogue ID: PHT-00471. DOI/link: <https://www.atsdr.cdc.gov/toxprofiles/tp9.pdf>

Li X et al. 2024. Association of Di(2-ethylhexyl) Phthalate Exposure with Reproductive Hormones in the General Population and the Susceptible Population: A Systematic Review and Meta-Analysis. *Environmental Health* 2:750–765.

Design: Systematic review and meta-analysis of DEHP biomarkers and reproductive hormones. Reported analytical approach: Pooled observational epidemiology using urinary DEHP metabolites and serum/reproductive hormone outcomes.

Findings: Across 37 studies (28,911 participants), DEHP was associated in men with lower total testosterone/free androgen index and altered SHBG/FSH patterns; associations were stronger in infertile men. Postmenopausal women appeared more susceptible. Prenatal DEHP–child hormone associations were not statistically significant.

Risk relevance: Suggests possible small endocrine associations, but supports neither a large effect in all adults nor individual-level attribution from a single urine sample.

Key limitations: High heterogeneity, cross-sectional designs, multiple hormones and residual co-exposure/confounding weaken causal certainty.

Catalogue ID: PHT-00472. DOI/link: <https://doi.org/10.1021/envhealth.4c00046>

Jang EA, Kim KN, Bae SH. 2024. Associations of concentrations of eight urinary phthalate metabolites with the frequency of use of common adult consumer and personal-care products. *Scientific Reports* 14:5187.

Design: Cross-sectional consumer-product and biomonitoring study. Reported analytical approach: Urinary measurement of eight metabolites with questionnaire-based product-use frequency.

Findings: Frequency of using several personal-care and consumer products was associated with urinary metabolite concentrations, showing that product use can measurably change short-term exposure.

Risk relevance: Supports personal-care products as a source for some low-molecular-weight phthalates and demonstrates source-specific intervention potential.

Key limitations: Cross-sectional self-report, spot urine and no health endpoint; associations do not quantify the fraction of total dose from each product.

Catalogue ID: PHT-00473. DOI/link: <https://doi.org/10.1038/s41598-024-55929-2>

U.S. EPA. 2025. Technical Support Document for the Cumulative Risk Analysis of Six Phthalates. EPA-740-R-25-028.

Design: Regulatory cumulative-risk assessment for DEHP, DBP, BBP, DIBP, DCHP and DINP. Reported analytical approach: Relative potency factors, shared fetal-testosterone endpoint, benchmark doses and NHANES exposure distributions.

Findings: DEHP NOAEL 4.8 mg/kg-day (human-equivalent dose 1.1 mg/kg-day) was selected; supporting DEHP NOAELs were 1–5 mg/kg-day and LOAELs 10–15 mg/kg-day. The cumulative risk cup was estimated at 1.7–15.5% full for assessed groups; cumulative margins of exposure were generally above the benchmark of 30, although the 95th-percentile male-child MOE was about 194.

Risk relevance: Provides a transparent regulatory comparison of modeled population exposure with animal-based points of departure and cumulative potency.

Key limitations: Model outputs depend on RPFs, endpoint selection, exposure databases and uncertainty factors; it does not prove absence of every possible human effect.

Catalogue ID: PHT-00474. DOI/link: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/cumulative-risk-assessment-phthalates>

U.S. EPA. 2025. Risk Evaluation for Diisononyl Phthalate (DINP). EPA-740-R-25-001.

Design: TSCA risk evaluation of DINP conditions of use. Reported analytical approach: Regulatory exposure and hazard assessment across consumer, occupational and environmental scenarios.

Findings: EPA identified unreasonable risk for certain worker conditions of use but not for most consumer conditions evaluated under TSCA assumptions. Food, medicines, cosmetics and medical devices regulated by other agencies were outside the TSCA determination.

Risk relevance: Shows that risk is use- and route-specific rather than a uniform property of every DINP-containing article.

Key limitations: Scope exclusions and scenario assumptions mean the decision is not a complete assessment of every product or susceptible population.

Catalogue ID: PHT-00475. DOI/link: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/final-risk-evaluation-diisononyl-phthalate-dinp>

Radke EG et al. 2018. Phthalate Exposure and Male Reproductive Outcomes: A Systematic Review of the Human Epidemiological Evidence. *Environment International* 121:764–793.

Design: Systematic review of human male reproductive outcomes. Reported analytical approach: Structured evidence appraisal of urinary/serum phthalate biomarkers and semen, hormone, fertility and genital outcomes.

Findings: Evidence was heterogeneous; some associations were reported for semen parameters, reproductive hormones and genital measures, with more consistent signals for DEHP/DBP than for several other phthalates.

Risk relevance: Identifies endpoints and study designs most relevant to possible male reproductive effects at population exposure levels.

Key limitations: Exposure misclassification, cross-sectional studies, co-exposure and inconsistent outcome definitions limit causal inference.

Catalogue ID: PHT-00476. DOI/link: <https://doi.org/10.1016/j.envint.2018.07.029>

Almeida-Toledano L et al. 2024. Effect of Prenatal Phthalate Exposure on Fetal Development and Maternal–Neonatal Health Consequences: A Systematic Review. *Science of the Total Environment* 950:175080.

Design: Systematic review of prenatal exposure and pregnancy, fetal and neonatal outcomes. Reported analytical approach: Review of maternal/cord biomarkers and clinical or birth outcomes.

Findings: Studies reported associations with selected pregnancy complications and fetal/neonatal outcomes, but direction and magnitude varied across metabolites and cohorts.

Risk relevance: Supports prioritizing pregnancy and fetal windows for better prospective research, not a uniform effect estimate for all pregnancies.

Key limitations: Heterogeneity, multiple outcomes, short biomarker half-lives and residual confounding reduce certainty.

Catalogue ID: PHT-00477. DOI/link: <https://doi.org/10.1016/j.scitotenv.2024.175080>

Harley KG et al. 2016. Reducing Phthalate, Paraben, and Phenol Exposure from Personal Care Products in Adolescent Girls: Findings from the HERMOSA Intervention Study. *Environmental Health Perspectives* 124:1600–1607.

Design: Short-term personal-care product substitution intervention. Reported analytical approach: Repeated urine metabolites before and after a 3-day phthalate-free product intervention.

Findings: Urinary MEP declined 27.4% (95% CI –39.3% to –13.2%); some other metabolites also changed, while several did not show significant reductions.

Risk relevance: Demonstrates that changing product formulations can reduce exposure rapidly, especially for DEP-derived MEP.

Key limitations: Small, non-randomized, short intervention with no clinical outcomes and incomplete control of background diet or environment.

Catalogue ID: PHT-00478. DOI/link: <https://doi.org/10.1289/ehp.1510514>

National Academies of Sciences, Engineering, and Medicine. 2008. *Phthalates and Cumulative Risk Assessment: The Tasks Ahead*. National Academies Press.

Design: Consensus workshop/report on cumulative-risk science and research priorities. Reported analytical approach: Expert synthesis of toxicology, exposure and risk-assessment methods.

Findings: Recommended evaluating phthalates with common antiandrogenic endpoints together, improving exposure characterization and addressing susceptible windows and mixtures.

Risk relevance: Foundational framework for the EPA's later cumulative-risk approach.

Key limitations: Published before many newer biomonitoring, epidemiology and alternative-plasticizer data; it is a framework rather than a new exposure study.

Catalogue ID: PHT-00479. DOI/link: <https://doi.org/10.17226/12528>

Duty SM et al. 2005. Personal Care Product Use Predicts Urinary Concentrations of Some Phthalate Monoesters. *Environmental Health Perspectives* 113:1530–1535.

Design: Cross-sectional personal-care product and biomonitoring study in women. Reported analytical approach: Urinary monoester measurement with product-use questionnaire.

Findings: Use of fragrances and selected personal-care products predicted higher urinary MEP and other metabolite concentrations, supporting dermal/inhalation and product-related exposure pathways.

Risk relevance: Early direct evidence linking ordinary personal-care use with biomarkers.

Key limitations: Older formulations, self-report, spot urine and no health endpoint.

Catalogue ID: PHT-00480. DOI/link: <https://doi.org/10.1289/ehp.8083>

Romero-Franco M et al. 2011. Personal Care Product Use and Urinary Levels of Phthalate Metabolites in Mexican Women. *Environment International* 37:867–871.

Design: Cross-sectional biomonitoring study. Reported analytical approach: Urinary phthalate metabolites and questionnaire-based personal-care use.

Findings: Product use, particularly fragrances and cosmetics, was associated with higher urinary metabolites in Mexican women, with patterns differing by compound.

Risk relevance: Shows that product-related exposure is reproducible across populations and markets.

Key limitations: Cross-sectional design and changing product formulations limit causal and temporal interpretation.

Catalogue ID: PHT-00481. DOI/link: <https://doi.org/10.1016/j.envint.2011.02.014>

Berger KP et al. 2019. Personal Care Product Use as a Predictor of Urinary Concentrations of Certain Phthalates, Parabens, and Phenols in the HERMOSA Study. *Journal of Exposure Science & Environmental Epidemiology*.

Design: Cross-sectional biomonitoring analysis in adolescent girls. Reported analytical approach: Urine metabolites linked to detailed personal-care product-use data.

Findings: Product use was associated with higher concentrations of several phthalate metabolites, especially fragrance-related MEP, but not uniformly across all compounds.

Risk relevance: Helps identify modifiable exposure sources and populations with higher short-term exposure.

Key limitations: Self-report, single-day measurements and co-occurring ingredients prevent precise source apportionment.

Catalogue ID: PHT-00482. DOI/link: <https://doi.org/10.1038/s41370-017-0003-z>

Huang L et al. 2021. Phthalic Acid Esters: Natural Sources and Biological Activities. *Toxins* 13:495.

Design: Review of reported natural occurrence and biological activity of phthalate esters. Reported analytical approach: Literature synthesis of plant, microbial, marine and laboratory reports.

Findings: Phthalate esters have been reported in plants, algae, bacteria and fungi, but contamination during sampling and laboratory processing is a recurring concern.

Risk relevance: Prevents an overly simple “entirely synthetic” narrative while recognizing that industrial materials dominate typical human exposure.

Key limitations: Natural occurrence is difficult to distinguish from contamination; biological activity evidence is uneven and often not exposure-relevant.

Catalogue ID: PHT-00483. DOI/link: <https://doi.org/10.3390/toxins13080495>

Yu Y et al. 2024. Prenatal Phthalate Exposure and Birth Size: A Systematic Review and Meta-analysis. *International Journal of Environmental Health Research*.

Design: Systematic review/meta-analysis of prenatal phthalate biomarkers and birth-size measures. Reported analytical approach: Pooled maternal/cord urinary metabolite studies.

Findings: MMP and MEP showed inverse associations with birth weight in pooled analyses; associations with length, head circumference and chest circumference were not consistent.

Risk relevance: Suggests small population-level associations for selected outcomes that require replication and careful confounding control.

Key limitations: Heterogeneity, exposure timing and multiple metabolites/outcomes limit a single causal interpretation.

Catalogue ID: PHT-00484. DOI/link: <https://doi.org/10.1080/09603123.2023.2287624>

Bornehag CG et al. 2015. Prenatal Phthalate Exposures and Anogenital Distance in Swedish Boys. *Environmental Health Perspectives* 123:101–107.

Design: Prospective birth cohort examining prenatal biomarkers and male anogenital distance. Reported analytical approach: Maternal urine metabolites and standardized newborn anthropometry.

Findings: A roughly 4% reduction in the shorter AGD measure per interquartile increase in DiNP metabolites was reported; results raised concern about replacing DEHP with DiNP.

Risk relevance: Sensitive-window endpoint consistent with antiandrogenic animal findings, but effect size is modest and observational.

Key limitations: Single/limited prenatal samples, multiple metabolites and potential co-exposure/confounding; replication is needed.

Catalogue ID: PHT-00485. DOI/link: <https://doi.org/10.1289/ehp.1408163>

Zota AR, Phillips CA, Mitro SD. 2016. Recent Fast Food Consumption and Bisphenol A and Phthalates Exposures among the U.S. Population in NHANES, 2003–2010. *Environmental Health Perspectives* 124:1521–1528.

Design: Population dietary-exposure and biomonitoring analysis. Reported analytical approach: NHANES 24-hour dietary recall linked to urinary metabolites.

Findings: High fast-food consumers had about 23.8% higher summed DEHP metabolites and 39.0% higher DiNP metabolites than nonconsumers; associations were strongest for meat and grain products.

Risk relevance: Supports food/dietary packaging and processing as a major modifiable pathway.

Key limitations: Cross-sectional diet recall, residual socioeconomic/diet confounding and no direct measurement of packaging migration.

Catalogue ID: PHT-00486. DOI/link: <https://doi.org/10.1289/ehp.1510803>

Swan SH et al. 2015. First Trimester Phthalate Exposure and Anogenital Distance in Newborns. *Human Reproduction* 30:963–972.

Design: Prospective pregnancy cohort with newborn genital measurements. Reported analytical approach: First-trimester maternal urinary metabolites and standardized anogenital distance.

Findings: Higher first-trimester DEHP metabolites were inversely associated with male anogenital distance; no comparable association was found in girls.

Risk relevance: Sensitive developmental endpoint with biological plausibility from animal antiandrogenic studies.

Key limitations: Observational design, short half-lives and possible mixture/confounding effects limit attribution to DEHP alone.

Catalogue ID: PHT-00487. DOI/link: <https://doi.org/10.1093/humrep/deu363>

Rochester JR et al. 2024. Phthalate Exposure and Neurotoxicity in Children: A Systematic Review and Meta-analysis. *International Journal of Public Health* 69:1606802.

Design: Systematic review/meta-analysis of child neurodevelopment and phthalate biomarkers. Reported analytical approach: Pooled cohort and cross-sectional associations across cognition, behavior and related domains.

Findings: Evidence quality was low or very low for most outcome combinations; small associations were somewhat more consistent for behavior and postnatal cognition than for global developmental scores.

Risk relevance: Signals a research priority but does not establish a clinically important effect at ordinary exposure.

Key limitations: Heterogeneity, multiple testing, exposure misclassification and residual co-exposure confounding.

Catalogue ID: PHT-00488. DOI/link: <https://doi.org/10.3389/ijph.2024.1606802>

U.S. Food and Drug Administration. 2025. Phthalates in Cosmetics.

Design: Regulatory/market surveillance and safety-information page. Reported analytical approach: FDA review of ingredient surveys, product testing and toxicological information.

Findings: DEP has been the most commonly detected phthalate in U.S. cosmetics; DBP and DMP are now uncommon in surveyed products. FDA describes current permitted uses and monitoring.

Risk relevance: Provides current U.S. product and regulatory context for cosmetic exposure.

Key limitations: Market surveys are time- and product-specific; absence in surveyed products is not proof of zero use everywhere.

Catalogue ID: PHT-00489. DOI/link: <https://www.fda.gov/cosmetics/cosmetic-ingredients/phthalates-cosmetics>

U.S. Food and Drug Administration. 2025. Phthalates in Food Packaging and Food Contact Applications.

Design: Regulatory review of food-contact uses, authorizations and migration context. Reported analytical approach: FDA inventories, petitions, safety evaluations and regulatory records.

Findings: Food-contact uses and authorizations differ by phthalate and application; regulatory status has changed over time and many flexible-PVC uses are not equivalent to exposure from PE, PP, PET, PS or PC articles.

Risk relevance: Supports route-specific assessment of food migration rather than treating all plastics as phthalate sources.

Key limitations: FDA page is a regulatory summary, not a single exposure study; actual migration depends on food, temperature, contact time and formulation.

Catalogue ID: PHT-00490. DOI/link: <https://www.fda.gov/food/packaging-food-contact-substances-fcs/phthalates-food-packaging-and-food-contact-applications>

Selected references and source links

- ATSDR DEHP Toxicological Profile: [ATSDR DEHP Toxicological Profile \(PDF\)](#)
- EPA cumulative phthalate risk assessment (2025): [EPA cumulative risk assessment page](#)
- EPA final DINP risk evaluation (2025): [EPA final DINP risk evaluation](#)
- Wang et al. biomonitoring review: [Wang et al. biomonitoring review](#)
- Radke et al. male reproductive systematic review: [Radke et al. male reproductive systematic review](#)
- HERMOSA intervention: [HERMOSA intervention \(free full text\)](#)
- Zota et al. fast food/NHANES: [Zota et al. fast-food study \(free full text\)](#)
- Swan et al. TIDES study: [Swan et al. TIDES study \(free full text\)](#)
- Bornehag et al. Swedish boys: [Bornehag et al. Swedish boys study](#)
- NASEM cumulative risk report: [NASEM cumulative risk report](#)

Disclaimer & scope

This report is an evidence synthesis prepared from the collected phthalate literature and reports. It is not a new systematic review, meta-analysis, clinical guideline, legal opinion or regulatory determination.

Study summaries are concise catalogue notes; the original source remains authoritative. Findings distinguish chemical presence, exposure, hazard, association and causation. Conclusions are compound-, route-, dose- and population-specific.

Modeled attributable fractions are counterfactual estimates, not observed death counts. Decisions involving medicines, medical devices, occupational exposure or regulation should use current primary sources and the relevant agency or clinical guidance.

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Plastics Research Council

PHthalates: Comprehensive Evidence Review

Evidence synthesis • 15 July 2026

Prepared for research, source evaluation and evidence-informed discussion.
Not a substitute for professional medical, legal or regulatory advice.