

WHAT'S IN THE PACKAGE?

The Toxic Secrets of Food and Beverage Packaging

THE PROBLEM: Look at the label of any packaged food or beverage and you'll see a list of ingredients. Chances are it doesn't include any of the approximately 4,800 chemicals used in the packaging.¹ Little to no data about the health and environmental effects of packaging chemicals is required.

Human Health Impacts:

Many food packaging chemicals migrate into food and beverages² and can cause a range of human health impacts, including:

- **Endocrine Disruption (ED):** At extremely low doses, EDs mimic natural hormones and can cause impaired fetal and sexual development, infertility, diminished libido, immunotoxicity, thyroid disturbance, diabetes, obesity, and can lead to cancer.
- **Cancer:** Some packaging chemicals known to cause cancer include styrene, perfluorinated substances (PFOA and PFOS), phthalates (DEHP and DiNP), and BPA.
- **Other Health Effects** include cardiac impairment, liver damage, low birth weight, pulmonary effects including asthma, neurological impairment, and thyroid disruption.

Environmental Impacts:

When food packaging is disposed of, the chemicals continue to migrate, contaminating water, air, and soil.

- **Trash:** 14 million tons of plastic waste were generated in 2012 from take-out and other food packaging.³
- **Water Pollution:** Perfluorinated chemicals are found in drinking water systems of 6 million Americans,⁴ while BPA is among the top contaminants detected



in landfill leachate that is eventually released into the environment.⁵

- **Wildlife:** Chemicals like nonylphenol, BPA, and phthalates have been linked to feminization of fish and other wildlife and reproductive failure in both aquatic and land-based animals.⁶

Regulatory Failure:

- The Food and Drug Administration (FDA) regulates packaging chemicals as "indirect food additives."
- The FDA's approach has steadily loosened to the point that industry makes the safety determination on each chemical additive and is not required to investigate or report health risks.⁷
- The public is not informed of what is in the packaging and is therefore exposed without its permission and unable to make safer choices.

THE SOLUTION: THE PUBLIC HAS THE RIGHT TO KNOW AND PROTECT ITSELF! **What's in the Package?** is a call for California to require that food packaging chemicals be put on the label!

Do YOU want the RIGHT TO KNOW what's in the package?

Sign our petition at www.cleanwater.org/toxicpackaging

SOME TOXIC CHEMICALS IN PACKAGING

Chemical Group /Name	Packaging Use and Migration	Health Effects
Bisphenol A (BPA) & alternatives: <ul style="list-style-type: none"> • Bisphenol S (BPS) • Bisphenol B (BPB) • Bisphenol F (BPF) • 4-cumyl-phenol (HPP) 	Epoxy resin liners in cans and additives in polycarbonate plastic (rigid #7 plastics) — BPA found in a majority of sampled foods in the U.S. and when migrating from resins, shown to pose health hazards. BPA migrates from polycarbonate bottles into water, increasing with rising temperatures.	BPA is a known human carcinogen (Prop 65), causes endocrine disruption and reproductive harm. Other effects: cardiac toxicity; liver damage; pulmonary effects such as asthma, and obesity. Alternatives may be endocrine disrupters as well.
PHTHALATES: <ul style="list-style-type: none"> • Diisononyl phthalate (DiNP) • Di(2-ethylhexyl) adipate (DEHP) • Disobutylphthalate (DiBP) 	Plasticizers — added to plastic resins, often used to create flexibility. Phthalates migrate from recycled paperboard packaging into infant food and dry food products such as rice, breadcrumbs, and cereals. Packaging of school meals increased phthalate presence by more than 100%.	Endocrine disruption, cancer (Prop 65). DEHP: Cardiac toxicity
Di (2-ethylhexyl) adipate (DEHA)	A non-phthalate plasticizer used in meat and cheese wrapping operations.	Potential carcinogen
4-Nonylphenol	A breakdown product of tris (nonylphenol) phosphite (TNPP) found in rubber products and polyvinylchloride (PCV) food wraps. High levels found in polystyrene and PVC food packaging.	Endocrine disruption
FLUORINATED SUBSTANCES: <ul style="list-style-type: none"> • Perfluorooctanoic Acid (PFOA) • Perfluorooctaine sulfate (PFOS) • Perfluoroalkyl acids (PFAAs) 	Used in greaseproof paper wrappers and coating for fiber-based food containers. Shown to transfer from paper packaging to food. Found in public drinking water supply of 6 million Americans.	Endocrine disruption, likely carcinogens, liver damage, low birth weight. PFOA: Cardiac disease and toxicity
Perchlorate	Used in gasket closures and as antistatic agent in dry food packaging. A common drinking water contaminant.	Inhibits uptake of iodide by thyroid leading to hypothyroidism and damage to developing fetuses and children.
Styrene	Monomer that leaches out of polystyrene.	Cancer (Prop 65)

For citations regarding the uses and health effects of these chemicals, see the full report, **What's in the Package**, pages 3-8.

- 1 Neltner TG et al (2011), Navigating the U.S. Food Additive Regulatory Program, *Comprehensive Reviews in Food Science and Food Safety*, 10:342-368.
- 2 Lau O, Wong S (2000), Contamination in food from packaging material, *Journal of Chromatography A*, 882:255-270; Arvanitoyannis Is, Bosnea , (2004), Migration of Substances from Food Packaging Materials to Foods, *Critical Reviews in Food Science and Nutrition*, 44:63-76.
- 3 EPA, *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012*. See: http://www.epa.gov/wastes/nonhaz/municipal/pubs/2012_msw_fs.pdf
- 4 <https://www.epa.gov/dwucmr/fact-sheets-about-third-unregulated-contaminant-monitoring-rule-ucmr-3>; <http://greensciencepolicy.org/toxic-chemicals-contaminate-drinking-water-of-6-million-in-us/>
- 5 Lee KE et al (2004), Presence and Distribution of Organic Wastewater Compounds in Wastewater, Surface Ground, and Drinking Waters, Minnesota, 2000-2002. Scientific Investigation Report 2004 – 5138, *United States Department of the Interior and United States Geological Survey*.
- 6 Colburn T. et al, *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival?* Dutton 1996.
- 7 Neltner TG et al (2011).