CHEMICALS THAT WERE ONCE COMMON AND ARE NOW BANNED IN THE U.S.

by Stuart Greenleaf for Beyond Toxics

NAME/ MAJOR SOURCES	PROPERTIES THAT PROMPTED USE	HARMFUL EFFECTS FOR THE ENVIRONMENT AND HUMAN HEALTH	DATE BANNED IN THE U.S. (additional notes below)
DDT/ pesticide	Kills broad spectrum of insects; use began in 1940s to prevent spread of malaria	Liver and reproductive toxin for humans and animals; probable carcinogen; persists in the environment and in body tissues	Banned in 1972 (1)
Lead/ paint, gasoline, pipes	Makes paint more durable, also a pigment; anti-knock agent and octane booster since the 1920s	Potent neurotoxin with severe developmental effects in children; cognitive, blood pressure and reproductive issues in adults	Banned in paint in 1978; phase-out in fuels completed 1996 (2)
Asbestos/ construction	Fire resistant and insulating; a naturally occurring silicate fiber	Various cancers, most notably mesothelioma of the lungs; fibers deposited in lungs ("asbestosis") can cause scarring	1989 ban overturned in 1991; recent ban in 2024 (3)
CFCs/ refrigerant, spray cans	Non-flammable; replaced combustible refrigerants	Depletes ozone in the atmosphere, reducing filtration of UV radiation; damage to the eyes and skin, including skin cancers; persistent greenhouse gas	Gradual ban completed in 1994
Mercury/ Batteries, coal, dental amalgam fluorescent bulbs	Reduces swelling and rupture in batteries; makes silver amalgam dental fillings more workable and durable	Highly neurotoxic, even in very small quantity; can have severe cognitive and neuromuscular effects on children and adults; accumulates in fish and seafoods, with human exposure from eating them	Banned in batteries 1996; emission from coal burning limited by 2011 EPA rule; 2020 EPA rule for amalgam disposal (4)
Phthalates/ plastics, cosmetics	Plasticizers - increases flexibility, transparency, durability; solvent in fragrances	Hormone disrupter, estrogen mimic; early puberty, infertility, obesity; probable carcinogen for breasts and reproductive organs	2008 EPA rule banned some phthalates in children's products (5)
Food Additives/ bromates, propylparaben, Red dye #3	Increases shelf life and has other functions in processed foods such as candy, cereal, soda, and baked goods	Existing studies link these additives to hyperactivity, nervous systems damage and increased risk of cancer in both adults and children	Banned in foods sold or manufactured in California by 2027 (6)
PFAS Fire-fighting foam, cookware, fabrics	Foam creates a film which contains fire; non-stick agent in cookware and in stain-resistant fabrics.	Linked to many health problems: weakened immune system, kidney cancer, elevated cholesterol, pregnancy-induced hypertension, liver damage, reduced fertility, and increased risk of thyroid disease.	Measures enacted in several states: bans on PFAS in firefighting foam, and a phase-out of PFAS in food packaging (7)

NOTES

(1) Rachel Carson and her 1962 book Silent Spring were fiercely attacked by the pesticide industry. She is credited for raising environmental awareness, which led to the 1972 banning of DDT. Upon the founding of the EPA in 1970, its initial task was pesticide regulation.

(2) When lead was added to gasoline in the 1920s, its toxicity was already known. Banning of lead in fuels was delayed by companies with a stake in continued lead use, including General Motors, funding studies to create the false impression that leaded gasoline was safe.

(3) The 1989 asbestos ban in the US was contested regarding the burden placed on industry, and overturned in 1991. A new ban was enacted in 2024.

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(4) Toxicity of mercury has been known since ancient times. The first scientific paper was published in 1926, involving inhalation of mercury vapor. Mercury in fluorescent bulbs is partially regulated in six states, while sweeping bans exist in Europe. A 2020 EPA rule requires dental offices to use a device which separates mercury amalgam material from other waste.

(5) Plasticizers, including phthalates and bisphenol-A (BPA), are considered "xeno-estrogens" with harmful effects listed in the table above. Up to now, significant restrictions have been enacted in only a few states.

(6) The California Food Safety Act of 2023 bans four food additives by January 2027. This statewide legislation, the first of its kind in the US, will prohibit any food product manufactured, sold, delivered, distributed, held or offered for sale in California after January 1, 2027, from containing brominated vegetable oil (solubility of flavoring), potassium bromate (dough conditioner), propyl paraben (anti-microbial preservative), or Red Dye No. 3 (coloring). Similar legislation is pending in other states.

(7) The family of several PFAS chemicals are "per-and polyfluoroalkyl substances", nicknamed "the forever chemicals" because they are very persistent in the environment and in living tissue. They are found in food, soil, air, and water. 12 states including CA, CO, CT, HI, IL, ME, MD, MN, NH, NY, VT, and WA have banned the sale of firefighting foam containing PFAS. 12 states including CA, CO, CT, HI, ME, MD, MN, NY, OR, RI, VT, and WA have enacted phase-outs of PFAS in food packaging.

● This table is a simplified overview, and harmful effects from chemicals are much broader than expressed here. Toxin regulations are complex and constantly evolving, with federal rules containing a multitude of details as well as some exceptions. Individual states and localities have rules of their own, while lobbying and litigation occur at every level of government.

● Since the 1940s about 100,000 new chemicals have been put into use, and the consequences of most are unknown. As research continues to emerge, concern over many additional chemicals is growing.

● There are two general perspectives in toxicology. A focus on gradual exposure examines subtle effects of very small doses over long periods, as may occur from eating foods with pesticide residue. The other perspective focuses on obvious symptoms from larger exposures, such as the 2014 crisis of lead in the water supply of Flint, Michigan.

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