

# Risk Policy Report

An exclusive weekly report for scientists interested in environmental policymaking and policymakers interested in science

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## EPA Finds Widespread Domestic Exposure To Flame Retardant Chemicals

EPA's final exposure analysis of a widely used class of flame-retardant chemicals shows higher domestic exposure than other parts of the world, with breast-fed infants facing the "greatest" relative exposure, while children face a higher relative exposure than adults.

"Human biomonitoring data indicate blood levels of [polybrominated diphenyl ethers (PBDEs)] in the United States are higher than those measured in other parts of the world," according to the May 24 *Federal Register* notice announcing the assessment's release. *Relevant documents are available on InsideEPA.com. See page 2 for details.*

The findings could bolster efforts by some lawmakers and environmentalists who have also been pushing legislation that seeks a speedier phaseout of one of the chemicals, decabromodiphenyl ether (deca), than a voluntary phaseout agreement between EPA and industry.

House Energy & Commerce Committee Chairman Henry Waxman (D-CA) and Rep. Bart Stupak (D-MI), who chairs the committee's investigation subcommittee, are also investigating whether the chemicals are adequately regulated.

The lawmakers last month wrote the three domestic manufacturers of the chemicals asking them to turn over reams of data on the chemicals' toxicity, exposure and other information that appears to be aimed at determining whether the chemicals are adequately regulated. "A growing number of peer-reviewed studies suggests a possible link between exposure to certain flame retardant chemicals and neurological, developmental, fertility, and reproductive problems in animals and in humans," the committee said in an April 20 press release.

The committee was scheduled to hold a hearing on the investigation May 20 but postponed it until a later date, according to its website.

PBDEs are widely used in electronics and furniture as flame retardants but have been linked to liver and thyroid toxicity, neurological problems and reproductive issues. While some of the chemicals have been banned, and companies have entered into a voluntary phaseout agreement for deca, the chemicals are persistent in the environment, raising questions about how the agency will address the contamination.

The notice says that breast-fed infants face the "highest" intake dose on a body weight basis, while children have a higher intake basis than adults. "Intake doses, expressed on a body weight basis, are highest for infants who breast feed and higher for children compared with those for adults," it says.

The assessment estimates American adults' total daily intake of PBDEs at 7.1 nanograms per kilogram of body weight per day (ng/kg-day). Children's estimated total daily intake ranged from 47.2 ng/kg-day for children aged 1-5 years to 8.3 ng/kg-day for children and teenagers aged 12-19 years. Infant intake doses were the highest estimated, at 141 ng/kg-day, assuming that an infant is breast-fed.

The notice indicates that exposure to PBDEs is "primarily associated with indoor dust," an exposure pattern that "differs from other persistent organic pollutants, such as dioxins and [polychlorinated biphenyls], where exposure is dominated by food ingestion."

Of the 7.1 ng/kg-day for total adult intake, EPA estimates that 6.4 ng/kg-day, or 90 percent of total intake was from inhaling or touching PBDEs in household dust.

The agency's finding is contained in a long-awaited assessment of human exposure to PBDEs — a key document in EPA's ongoing efforts to investigate and regulate the human health and environmental impacts of PBDEs and some of their alternatives. The document, *An Exposure Assessment of Polybrominated Diphenyl Ethers*, "provides an assessment of the exposure of Americans to" PBDEs, according to the notice.

"It includes chapters on use and production of PBDEs, environmental fate, environmental and exposure media concentrations, and an exposure assessment including background exposures and exposures to special populations," the notice says.

The agency's finding is consistent with a study released by environmentalists in 2008 that found infants and toddlers typically had three times as much of the chemicals in their blood as their mothers.

The Environmental Working Group, which released the study, used it to critique a draft version of EPA's exposure assessment, which EWG charged underestimated PBDE exposures to the fetus, infant and young child. A source with the

group noted at that time that EPA's draft assessment did not indicate whether the American population is exceeding the daily safety standards that EPA published in 2008 for a handful of PBDEs.

While the new assessment indicates widespread presence of the chemical in the U.S. population, the agency has been taking steps to limit exposures. Under the chemical action plan, one of four plans EPA unveiled Dec. 30, the agency will use its existing authority under the Toxic Substances Control Act (TSCA) to require that new uses of PBDEs be approved by the agency.

EPA plans to initiate a rulemaking this year to add commercial PBDE mixtures to the concern list under TSCA section 5, as well as issue significant new use rules for the manufacture or import of articles containing pentabromodiphenyl ether and octabromodiphenyl ether. EPA will continue to support a recently announced voluntary program to phase out use of deca by the end of 2013, conduct an analysis of possible alternatives, and initiate a rule to develop more information on manufacture and use of deca.

EPA also late last year announced a voluntary agreement of manufacturers to phase out production of deca.

But one Maine lawmaker, backed by environmentalists, has introduced legislation to mandate the phaseout and strictly regulate substitutes. Rep. Chellie Pingree (D-ME) and environmentalists argue that the voluntary initiative is not strict enough, because it does not ensure the safety of alternative chemicals and is not legally binding. The bill has been referred to the House Energy & Commerce, Foreign Affairs and Ways and Means committees. — *Maria Hegstad*