

Legal Lookout: EPA Seeks to Curb PBDEs

ISSUE DATE: 02/01/2005

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EPA claims growing evidence that certain polybrominated diphenylethers (PBDEs) persist in the environment and accumulate in living organisms and the possibility that these chemicals cause certain adverse health effects. EPA proposed last December to curb the manufacture and import of these substances. Specifically, EPA proposed a Significant New Use Rule (SNUR) which, if implemented, would require manufacturers and importers to notify EPA at least 90 days before manufacturing or importing any one or more of the PBDEs listed.

PBDEs

PBDEs are part of a broader class of chemicals known as brominated flame retardants (BFRs) — a chemically diverse group of chemicals used to retard flame and contain bromine.

Historically, many products were made of inherently fire-resistant material, such as metal, which limited the need for flame retardant chemicals. Now, however, many products are made from plastic and other highly flammable oil-based materials, which has accounted for the great commercial success of BFRs. Flame retardants have been enormously effective in saving lives by, for example, allowing people time to escape from burning buildings. At the same time, however, their success has caused alarm due to their persistence in the environment.

According to EPA and other government health agencies, while these products have saved lives, they are also harmfully released and accumulate in the environment. The human health toxicological endpoints of concern for these chemicals include liver toxicity, thyroid toxicity and neurodevelopment toxicity. The presence of PBDEs in the environment and human bodily fluids have raised concerns for potential adverse effects in people and the environment, particularly since these chemicals may build up over time.

TSCA authorities

TSCA Section 5(a)(2) authorizes EPA to issue a SNUR after determining that a use of a chemical substance is a "significant new use." Under SNURs, a manufacturer, importer or processor is required to notify EPA at least 90 days before it manufactures, imports or processes certain chemical substances for any use that EPA has designated as "significant" in the SNUR. The PBDEs included in the proposed SNUR are:

- tetrabromodiphenyl ether (tetraBDE) (CAS No. 40088-47-9; benzene, 1,1'-oxybis-, tetrabromo deriv.);

- pentaBDE (CAS No. 32534–81–9; Benzene, 1,1'-oxybis-, pentabromo deriv.);
- hexabromodiphenyl ether (hexaBDE) (CAS No. 36483–60–0; Benzene, 1,1'-oxybis-, hexabromo deriv.);
- heptabromodiphenyl ether (heptaBDE) (CAS No. 68928–80–3; Benzene, 1,1'-oxybis-, heptabromo deriv.);
- octaBDE (CAS No. 32536–52–0; benzene, 1,1'-oxybis-, octabromo deriv.);
- nonabromodiphenyl ether (nonaBDE) [CAS No. 63936–56–1; Benzene, pentabromo(tetrabromophenoxy)]
- and any combination of these substances resulting from a chemical reaction.

Great Lakes Chemical Corp., whom EPA believes to be the only U.S. manufacturer of commercial products pentaBDE and octaBDE, has committed to voluntarily phase out these chemicals by discontinuing their manufacture by the end of 2004. EPA is aware of no ongoing production of tetra-, hexa-, hepta- or nonaBDE, except as components of pentaBDE and octaBDE commercial products. The agency believes that any manufacture or import of these chemicals occurring after Great Lakes' phase-out dates would increase the magnitude and duration of exposure to these chemicals. Therefore, EPA has proposed to designate as a significant new use any manufacture or import of the listed PBDEs for any use on or after Jan. 1, 2005. EPA states that because decaBDE is not included in the voluntary phase-out, and therefore would remain in commerce after Jan. 1, 2005, it would not be subject to the proposed SNUR.

Global regulatory concern

Concern over these chemicals is not new. EPA requested their testing under its Voluntary Children's Chemical Evaluation and High Production Volume programs. PBDEs were also regulated as hazardous air pollutants included in the list of compounds compromising polycyclic organic matter in April 2002.

Some states have also regulated PBDEs. For example, California will ban the use of penta- and octaBDE in 2008; Maine and Hawaii will do so in 2006. Many other countries similarly believe these chemicals present unreasonable risks to human health and the environment. The European Union enacted restrictions on the use of PBDEs in electrical and electronic equipment in 2003. All PBDEs will be banned in electronic and electrical equipment as of July 1, 2006.

Implications

EPA's proposed rule, assuming it is issued as expected, will have several implications. First, it will jumpstart the development of chemical alternatives to PBDEs that will be subject to the SNUR. In this regard, EPA has convened a group of stakeholders, including chemical manufacturers, the furniture industry, government agencies and environmental/consumer groups, under the Furniture Flame Retardancy Partnership to identify and develop alternative chemicals that are believed to be safer. See www.epa.gov/oppt/dfe/projects/flameret.

Second, domestic product manufacturers that have been reliant upon PBDEs subject to the SNUR will need to find other materials to impart the properties for which the PBDEs had been used. The SNUR will not, however, prohibit foreign manufacturers from importing consumer products that contain the flame retardants subject to the SNUR. Once the rule is issued, domestic manufacturers may thus be disproportionately and adversely impacted by the rule.

Third, the identification and use of alternatives will likely be subject to great scrutiny to ensure that these newer chemicals do not pose the same risks presented by those chemicals addressed under the SNUR. This is a concern that environmental activists have long raised when EPA seeks to curb the use of otherwise commercially popular chemicals. Some times new chemicals have been subject to little or no toxicology testing, and there is virtually no track record regarding their use. Because of another chemical's phase-out or ban, their market popularity is generally assured, thus making their use all the more troubling in the absence of a robust toxicology data package. The Environmental Working Group has already flagged one replacement product Great Lakes Chemical reportedly planned to use; the substance contained bromine and was apparently similar to PBDEs.

Finally, EPA will likely be of the view that TSCA is well suited, as currently written, to address chemicals, the use of which may pose environmental and/or human health risks. The Government Accountability Office is now reviewing TSCA with a view toward assessing its effectiveness in blunting chemical risks. A report is expected in 2005. It is also widely believed that Congress will convene hearings on TSCA in 2005. The proposed SNUR on PBDEs will be identified by EPA as a TSCA success story, confirming EPA's belief that TSCA need not be statutorily amended to achieve Congress's goals when enacting it in 1976.

Pollution Engineering readers with interests in these chemicals, or in the development of replacement chemicals, should monitor this rulemaking and be prepared for a final rule, which is expected in 2005. ***PE***

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