

From the
Chemical & Material Risk Management Directorate,
Office of the Under Secretary of Defense for Acquisition, Technology & Logistics

Chemical & Material Emerging Risk Alert

Decabromodiphenyl Ether (DecaBDE)

International and Federal regulatory pressures are resulting in a phase-out of one of the world's most widely used flame retardants. Components in DoD combat systems could be affected.

What is decaBDE?

DecaBDE is a flame retardant added to materials to reduce the risk of fires and to increase escape time when a fire occurs. The chemical belongs to a group of polybrominated diphenyl ethers (PBDEs), a class of flame retardant chemicals that have been under regulatory scrutiny for their potential risks to human health and the environment.

How is decaBDE used in the DoD?

The most common materials containing decaBDE include textiles, electronics equipment, and building and construction materials. Its primary use is in high impact polystyrene-based products, such as product casings.

Critical uses of decaBDE in the DoD are still being identified.

What are the main health and environmental concerns?

The ways in which decaBDE, and other PBDEs, get into the environment and humans may include releases across the life cycle of the chemical, for example, manufacturing, processing into products containing the chemicals, use and disposal of these products. Once released to the environment, decaBDE degrades to a variety of PBDE breakdown products. There is scientific evidence that PBDEs and the breakdown products are persistent and accumulate in living organisms up the food chain. This is a concern because studies on animals and humans have shown that some of these chemicals can cause organ toxicity, endocrine disruption, and developmental neurotoxicity.

How is decaBDE regulated?

There are no national level environmental or occupational health standards for decaBDE. However, the Environmental Protection Agency has established an oral reference dose and the Agency for Toxic Substances and Disease Registry (ATSDR) has established a minimal risk level for oral exposure. There is one occupational exposure limit for decaBDE established by the American Conference of Governmental Industrial Hygienists (ACGIH).

What is the emerging risk?

Despite the lack of federal restrictions concerning decaBDE, industry has committed to the phase-out of its manufacture, import, and sales for all consumer and industrial purposes, including military applications, by December 31, 2013.

Phase out of decaBDE will require the development and testing of alternatives for a variety of highly-specialized uses. Government and industry are concerned about not having sufficient time to transition to safe and effective alternatives.

What should you do in response to this Alert?

Identify specific flammability criteria or specifications for equipment or components (for example: upholstery, electronics) that may require decaBDE. Work with suppliers to ensure that substitutes will meet DoD performance requirements. Notify the Chemical and Material Risk Management Directorate of critical uses of decaBDE in the DoD. The point of contact is George Murnyak (george.murnyak@us.army.mil).

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