

Deca-BDE Flame Retardant

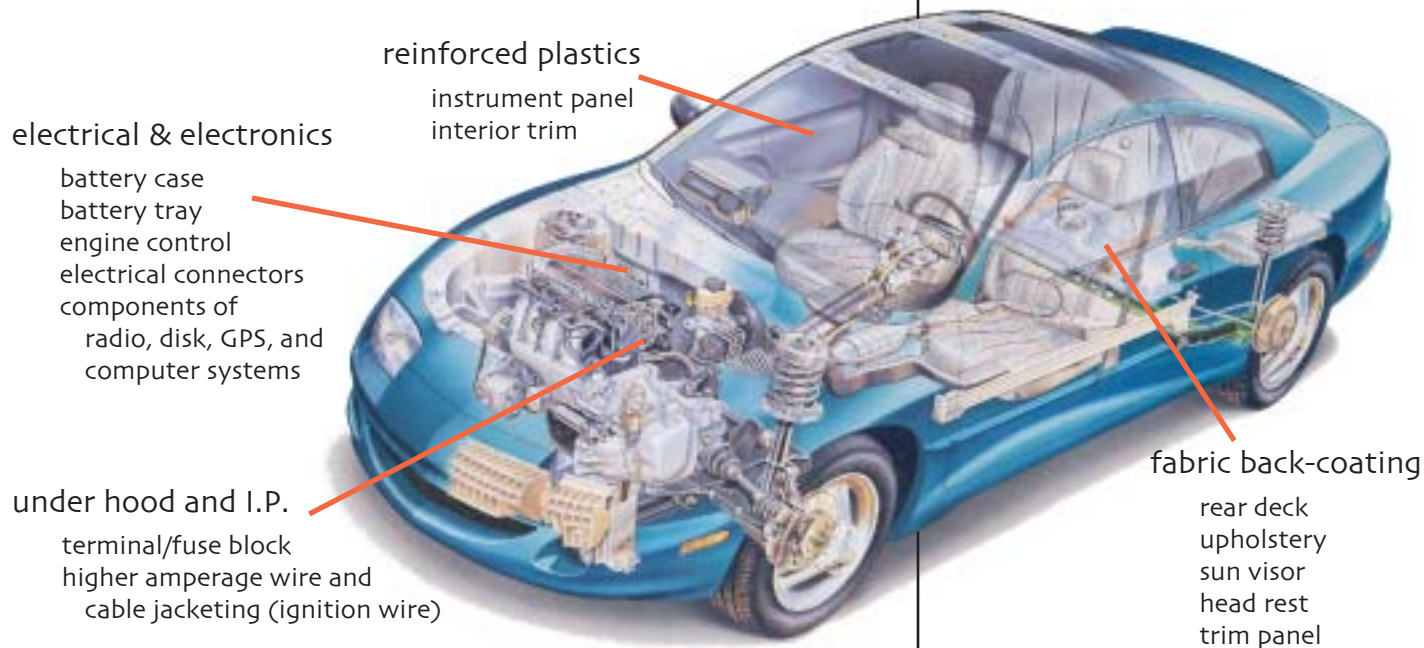
Automotive Facts

Flame retardants, or ignition-resistant materials, help to prevent fires from starting and slow the rate of growth of fires that do start. Many automotive components are mandated to achieve a given level of flame retardancy per FMVSS#302, and the OEM material specifications incorporate these requirements.

Deca-BDE (decabromodiphenyl ether) is a brominated flame retardant used in a variety of applications because of its compatibility with component materials and its effectiveness in preventing fires. Deca-BDE is the best fire retardant available for a wide array of automobile components.

Commercial Deca-BDE is the most studied flame retardant on the market and has been found to present no significant risks to humans or the environment. The full life cycle of the Deca-BDE product has been evaluated, from initial production through recycling at the end of consumer product life, and Deca-BDE has been deemed safe for continued use.

Possible Locations of Deca-BDE in Vehicles



In its areas of application, Deca-BDE is the most effective flame retardant available.

- *Deca-BDE is highly efficient compared to other flame retardants, requiring relatively low usage levels to provide a high degree of ignition resistance.*
- *Deca-BDE is encapsulated within the plastic automotive parts in which it is used.*
- *The impact of Deca-BDE on the physical properties of the parts is much less than that of other flame retardants.*

Despite advancements in fire safety, vehicle fires still represent a very serious risk.

- In 2004 alone, there were 297,000 vehicle fires in the United States.*
- 550 deaths resulted from vehicle fires in the United States in 2004.*
- Property damage from vehicle fires in the United States totaled approximately \$1,304,000,000 in 2004.*

*National Fire Protection Association, 2005 (www.nfpa.org)

Legislative Status

There are no laws or regulations anywhere in the world that ban or restrict the commercial use of Deca-BDE.



A ten-year-long risk assessment of all Deca-BDE's potential environmental and human health impacts carried out by the European Union government chemical authorities was closed in May 2004. It concluded that there were no identifiable risks and no restrictions on use of Deca-BDE. That conclusion led directly to the European Commission's exemption of Deca-BDE from the Restrictions on Hazardous Substances Used in Electrical and Electronic Applications (ROHS) Directive on October 15, 2005.

Other independent studies confirm these results and include:

- U.S. National Academy of Sciences Review of DBDPO (Deca-BDE)
- Consumer Product Safety Commission DBDPO Risk Assessments
- U.K. Department of Trade and Industry: Risks and Benefits in the Use of Flame Retardants
- Japan's Risk Assessment of Deca-BDE
- California Senate Office of Research report on PBDEs

Automotive Areas Vulnerable to Fire

interior

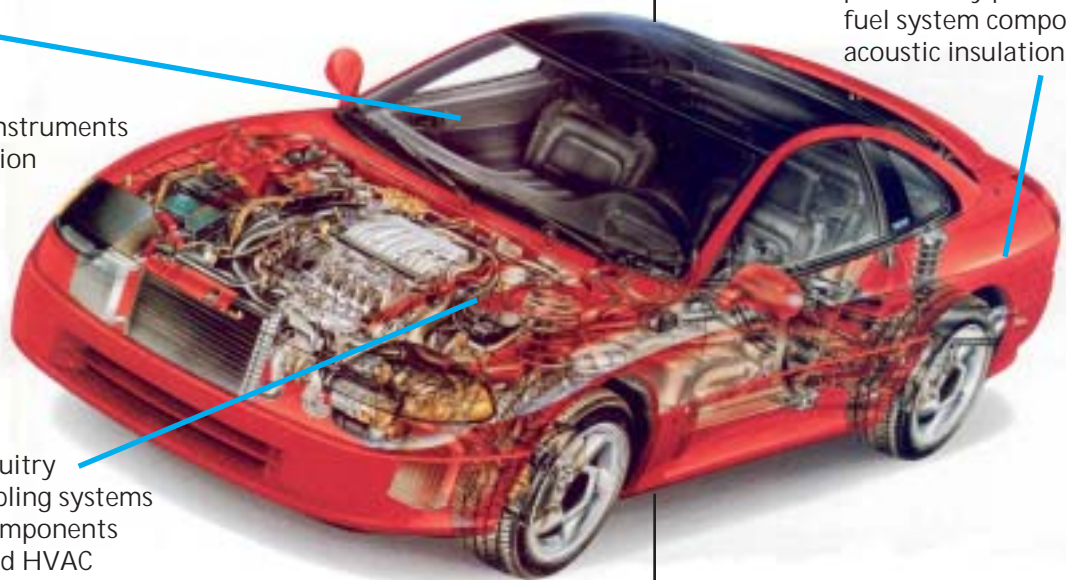
seats
panels and trim
crash pad and instruments
acoustic insulation
adhesives

under hood

ignition circuitry
wire and cabling systems
electrical components
air filters and HVAC

exterior

plastic body panels
fuel system components
acoustic insulation



Other polybrominated diphenyl ethers (PBDEs), in particular pentabromodiphenyl ether (Penta-BDE) and octabromodiphenyl ether (Octa-BDE) and articles containing them have been prohibited in some states. Manufacturers voluntarily ceased production of these compounds as of December 2004. It is important to understand that, despite the tendency to group all PBDEs together and refer to them as a single chemical, Deca-BDE is, in fact, a chemically and structurally distinct chemical.

Product Stewardship

BSEF has established a Voluntary Emissions Control Action Program (VECAP). Under VECAP, BSEF works closely with manufacturers and other end users of Deca-BDE to ensure they are employing "best practices" in the handling and use of Deca-BDE in their facilities and processes. The VECAP program is achieving significant results in Europe, and similar results are anticipated in North America.

Prepared by the Bromine Science and Environmental Forum with assistance from the SAE Substance of Concern Committee of the USCAR Vehicle Recycling Partnership