

Safer Alternatives to Deca

Achieving Fire Safety Without Toxic Chemicals

... We did not see any evidence that flame retardants being used as alternatives to decaBDE do not meet all required fire safety standards.ⁱ -- Illinois Environmental Protection Agency

S.109 focuses on the primary use of Deca and takes preventative measures to ensure that sectors of industry not currently using Deca avoid its use in the future.

Specifically, the bill would limit the use of Deca only in the following products:

- Plastic housing of TVs & computers
- Upholstered furniture
- Mattresses or mattress pads

Current Uses of Deca

Approximately 80% of Deca used in the United States is in electronics, with the vast majority used in the plastic casings of televisions. The use of Deca in computer monitors is extremely rare. According to Washington State, 95% of computer products are Deca-free.ⁱⁱ

Textiles comprise the second largest use of Deca in the country. However, the chemical is not currently used in residential upholstered furniture and “furniture industry sources suggest that, in 99% of cases, chemical flame retardants will not be needed to meet pending national standards for residential upholstered furniture.”ⁱⁱⁱ

With regard to mattresses, Deca was previously used by manufacturers. However, the industry has made a shift. “The International Sleep Products Association (ISPA), a trade association representing mattress manufacturers, reports that all its members use fire-resistant barriers that minimize the need for flame retardant chemicals.” In addition, manufacturers have uniformly avoided the use of Deca to meet a national flammability standard that took effect in July 2007.^{iv}

Current Uses of Deca

Plastic housing of TVs	Vast majority
Plastic housing of computers	Very rare
Residential upholstered furniture	Not used
Mattresses or mattress pads	Industry shift away from Deca

Fire Safety Standards for TVs

Underwriters Laboratory (UL) sets fire safety standards for TVs sold in the United States.

The UL standard for TV enclosures requires the UL94 V-0 rating for any plastic within two inches of an ignition source.

This is a vertical burn test where five vertically mounted samples of plastic are exposed to two consecutive ten-second ignitions from an open flame. The UL 94 V-0 rating, one of the most stringent, means that:

- The extinguishment time for each sample does not exceed 10 seconds
- The total combustion time for all five samples does not exceed 50 seconds
- The afterglow time per sample does not exceed 30 seconds
- There were no flaming drips
- No burning occurred up to the holding clamps

Deca-free TVs that meet the UL94 V-0 standard are already on the market.

57% of TVs are already Deca-free

Source: Washington State DEP. *Washington State Polybrominated Diphenyl Ether (PBDE) Chemical Action Plan: Final Plan* (p.65). January 2006.

Meeting Fire Safety Standards

Fire safety standards for televisions, computers, furniture, and mattresses can be achieved without Deca by using non-chemical and chemical substitutes.

Non-chemical alternatives to Deca can include the redesign of a product or the use of materials that are inherently more flame resistant. For example, in electronic equipment, metal components could be used to protect the power supply. And with textiles, easily ignitable fabrics such as cotton could be replaced with materials that are difficult to ignite or burn more slowly (such as nylon, silk, and wool).^v

Fire safety standards can also be met by using chemical alternatives to Deca. For example, a phosphorous-based compound called resocinol bis diphenyl phosphate (RDP) is a common substitute for Deca in electronics. According to the Maine Department of Environmental Protection and Center for Disease Control and Prevention, “RDP presents a significantly lower threat to the environment and human health than decaBDE.”^{vi}

Affordable Alternatives

Alternatives to Deca are not only available, but are cost effective as well. According to reports written by the states of Illinois, Maine, and Minnesota, there are affordable alternatives to Deca for consumer electronics, residential upholstered furniture, and mattresses.

In fact, many of these alternatives are already being used in the marketplace. For instance, Washington State estimates that roughly 57% of televisions and 95% of computer products do not contain Deca.^{vii} And as noted above, mattress manufacturers have already shifted away from the use of Deca.

Many electronics manufacturers have already removed Deca from their products including:

- Sony
- Apple
- LG Electronics
- Sharp
- Dell
- Toshiba Personal Computing
- Samsung
- Lenovo
- Hewlett Packard
- Panasonic
- Phillips

Source: Clean Production Action. *Progress Towards PVC and BFR Elimination by Leading Electronic Manufacturers Selling Products in the US*, February 2008.

Leading mattress manufacturers that do not use Deca include:

- Sealy
- Kingsdown
- Simmons
- Englander
- Serta
- International Bedding Corp
- Tempur-Pedic
- Restonic
- Select Comfort
- Corsicana
- King Koil
- Lady Americana

Source: Michigan Network for Children's Environmental Health. *Leading Companies Not Using Deca-BDE*. Available at: http://www.mnceh.org/documents/DecaBDE_alts-12-12.pdf (Accessed on January 15, 2009)

For all applications in which decabDE currently is used, alternatives without decabDE are available...No applications were identified in which decabDE is the only flame retardant used or in which decabDE offers unique or exceptional properties. No application was identified in which the use of alternatives requires a compromise in fire safety.^{viii}

-- Maine Department of Environmental Protection & Maine Center for Disease Control and Prevention

ⁱ Illinois Environmental Protection Agency, *Report on Alternatives to the Flame Retardant DecaBDE: Evaluation of Toxicity, Availability, Affordability, and Fire Safety Issues* (Appendix I, p.16), March 2007.

ⁱⁱ Washington State DEP. *Washington State Polybrominated Diphenyl Ether (PBDE) Chemical Action Plan: Final Plan* (p.65). January 2006.

ⁱⁱⁱ Maine Department of Environmental Protection and Maine Center for Disease Control and Prevention, *Brominated Flame Retardants: Third Annual Report to the Maine Legislature* (p.25-26, 35), January 2007.

^{iv} Maine Department of Environmental Protection and Maine Center for Disease Control and Prevention, *Brominated Flame Retardants: Third Annual Report to the Maine Legislature* (p.26, 35), January 2007.

^v The Lowell Center for Sustainable Production, University of Massachusetts Lowell, *Decabromodiphenylether: An Investigation of Non-Halogen Substitutes in Electronic Enclosure and Textile Applications* (p.35), April 2005.

^{vi} Maine Department of Environmental Protection and Maine Center for Disease Control and Prevention, *Brominated Flame Retardants: Third Annual Report to the Maine Legislature* (executive summary), January 2007.

^{vii} Washington State DEP. *Washington State Polybrominated Diphenyl Ether (PBDE) Chemical Action Plan: Final Plan* (p.65). January 2006.

^{viii} Maine Department of Environmental Protection and Maine Center for Disease Control and Prevention, *Brominated Flame Retardants: Third Annual Report to the Maine Legislature* (p.36), January 2007.