SIPs and HBCD Flame Retardants

Hexabromocyclododecane (HBCD) serves as the flame retardant in EPS and XPS foam insulation, enhancing fire resistance in building and construction applications. It enables EPS to adhere to strict fire safety requirements outlined by the International Code Council and National Building Code of Canada. With HBCD added at low levels (around 0.5% by weight in EPS), fire safety is ensured without compromising thermal insulation quality.

HBCD Risk Assessment

Scientific assessments have extensively evaluated the potential risks of HBCD to human health and the environment. Research indicates that HBCD is degradable and does not persist in environmentally relevant concentrations. Its distribution in the environment is primarily confined to sediments near point sources, posing minimal toxicity to sediment-dwelling species. Additionally, leaching of HBCD from polystyrene foam insulation is negligible under normal building conditions.

Industry Actions

While scientific evidence suggests minimal risk associated with HBCD in foam insulation, ongoing review by government agencies is warranted. The flame retardant industry collaborates with regulatory agencies in North America and Europe to conduct further environmental testing and implements voluntary emissions reduction programs to minimize HBCD emissions.

Search for HBCD Alternatives

No commercially available alternative to HBCD exists for foam insulation at present. Manufacturers acknowledge specific criteria that must be fulfilled before HBCD substitutions can be considered and adopted:

- Equal or superior flame retardance
- Equivalent or enhanced performance and physical properties
- Reduced environmental and human health risks
- Cost effectiveness
- Compatibility with current manufacturing processes

HBCD Status in U.S.

HBCD is not listed as a chemical in the U.S. Toxics Release Inventory (TRI) program.

www.preflexinc.com
3411 3rd Ave. San Diego, CA. 92103, USA
+1 866 784 4462

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3411 3rd Ave. San Diego, CA. 92103, USA
+1 866 784 4462