Flame Retardants

Flame retardants refer to a variety of substances that are added to combustible materials to prevent fires from starting or to slow the spread of fire and provide additional escape time.

Unique Benefits

When added to different materials, flame retardants can help prevent fires from starting or limit their spread.

According to the National Fire Protection Association (NFPA) in 2012, more than 1.3 million fires were reported in the United States, causing 2,855 civilian fire deaths, 16,500 civilian injuries and $12.4 billion in property damage. The use of flame retardants is especially important today, as the large volume of electrical and electronic equipment in today’s buildings, coupled with a larger volume of combustible materials, can increase the potential for fire hazards.

Products that Use Flame Retardants

Flame retardants provide consumers with a critical layer of fire protection and are vital to reducing the risks associated with fire. Today, flame retardants are used in four major areas:

Electronics and Electrical Devices

Flame retardants can enable modern electronic equipment, like television, and computers, to meet fire safety standards and are vital to the safety of hundreds of these products.

Building and Construction Materials

Flame retardants used in a variety of building and construction materials in homes, offices and public buildings, including schools and hospitals, can provide increased fire safety protection.

Furnishings

The addition of flame retardants to the material fillings and fibers used in furnishings helps provide individuals with an extra layer of fire protection and increases critical escape time in case of a fire.

Transportation

From airplanes to cars to trains, flame retardants play a key role in protecting travelers from the devastation of fire. After the July 2013 Asiana Airline crash in San Francisco, for example, experts credited flame retardant materials with helping passengers survive the crash. As former FAA Director Steven Wallace told the New York Times, “Flame retardant materials inside the plane, including foil wrapping under the seats, most likely helped protect many passengers.”
Answering Questions about Flame Retardents

The following addresses common questions you may have about flame retardants:

Are flame retardants dangerous to people’s health?

Flame retardants are a critical element of fire safety. Flame retardants are subject to review by EPA and other governmental agencies. Flame retardant manufacturers strive to innovate and make better performing and more sustainable flame retardants. All new flame retardant chemicals must be reviewed by EPA.

Do flame retardants in furniture actually stop the spread of fires?

The number of upholstered furniture fires in the home environment dropped by 84 percent from 1980, the first year that data were available, to 2009, according to NFPA. While several factors have contributed to that sharp decline, the timeframe coincides with the use of flame retardants to meet flammability standards imposed in California in 1976. In the absence of a national requirement, the California standards were broadly followed by the US furniture industry over the following 20 years. Similar findings have been reported in the United Kingdom where flammability standards also are in place for furniture.

Despite this substantial progress, upholstered furniture remains a significant contributor to home fire deaths, according to NFPA. During the period from 2005 to 2009, while upholstered furniture was the item first ignited in 2 percent of reported home fires, these fires resulted in 19 percent of the home fire deaths.

Are candles, lighters and matches still a significant source of fires?

Looking at U.S. home fires that originated with upholstered furniture between 2005 and 2009, the NFPA reports, “Together, candles, matches and lighters were involved in 21 percent of the fires and 12 percent of the deaths.” By preventing or slowing the spread of these small flames, flame retardants can provide valuable escape time during a home fire.

Safety Information

There are many different types of flame retardants with distinct properties. Much of the recent media focus on flame retardants has been around polybrominated diphenyl ethers (PBDEs), which have been phased out in the United States.

Chemistry is rooted in innovation, and the next generation of fire-safety products is in various stages of development. Like all chemicals, flame retardants currently in use and new fire-safety chemicals are tested by the manufacturers and are subject to review by the U.S. Environmental Protection Agency (EPA) and regulators around the globe. EPA has authority to limit or even prohibit a chemical’s use if the agency concludes that the chemical presents or will present an unreasonable risk of injury to health or the environment. EPA recently indicated that approximately 50 flame retardants that it had reviewed were unlikely to pose a risk to human health.

The European Union conducted a thorough evaluation of Tetrabromobisphenol-A (TBBPA), in which no health effects were identified and consumer exposure was deemed insignificant. A 2013 Review of TBBPA by the Canadian government concluded that “The Government of Canada has also concluded that TBBPA, TBBPA bis (2-hydroxyethyl ether) and TBBPA bis (allyl ether) are not harmful to human health at current levels of exposure.” Tris (chloroisopropyl) phosphate (TCPP) is used in spray polyurethane foams in building insulation and in foams in upholstered furniture. A thorough critical review of TCPP conducted by health authorities in Europe concluded there is “no need for further information and/or testing and no need for risk reduction measures beyond those being applied already.”

More Information

North American Flame Retardant Alliance
http://flameretardants.americanchemistry.com