

Flame Retardants

Summary

Flame retardants are used in many products, including upholstery and furniture. Their function is to help delay or prevent the spread of fire. Some remain in the environment for a long time. Certain flame retardants can accumulate inside cells, and are regularly identified in human body fluids and tissues. Some are toxic to wild-life and humans and have been linked to human health problems, including breast cancer. Certain flame retardants are known carcinogens. Others act as oestrogen mimics and so may increase breast cancer risk. Breast Cancer UK supports measures that promote fire safety which do not pose a risk to human health should be encouraged, including a phase out of particular flame retardants that are harmful to the environment and human health.

Short Background Briefing: Flame retardants

What are flame retardants and where are they used?

Flame retardants are chemicals used in consumer and industrial products to prevent or delay fires and reduce flammability, especially of synthetic materials. Their use is required for compliance with [The Furniture and Furnishings \(Fire\) \(Safety\) Regulations 1988](#), which applies to new and second hand domestic upholstered furniture, furnishings and other products containing upholstery supplied in the UK.

Flame retardants are found in electronics, furniture and furnishings, clothing and fabrics, building materials and vehicles. They may be released into the environment during normal product use, as well as during manufacture, disposal, recycling, and when products are exposed to fire (1). Because of strict UK fire regulations, many materials and products sold in this country contain especially high amounts of flame retardants (2).

How are we exposed to potentially harmful flame retardants?

Only certain flame retardants are harmful and pose a risk to human health and the environment. Potentially harmful groups include brominated, chlorinated and organophosphorus flame retardants - this brief considers these groups only. Information on specific names of harmful flame retardants can be found in our [full length background briefing](#).

Flame retardants are detected in air, dust, soil, water, food and wildlife. We are exposed mainly by breathing contaminated dust and from our diet (3).

Many flame retardants are classified as persistent organic pollutants by the UN (4, 5), meaning they can persist in the environment. Some are now banned (6). Many flame retardants accumulate inside living cells, and can be toxic to wildlife and humans. They are regularly identified in human body fluids (e.g. blood, breast milk) and tissue (e.g. placenta) (7, 8). High levels can be found in some oily fish and meat (9). In general, levels are higher in children than adults, due to breastfeeding and dust exposure (10).

Flame retardants: are there potential links to breast cancer?

Some flame retardants are carcinogenic (11, 12) (cause cancer) and some act as [endocrine disrupting chemicals](#) (13, 14), interfering with hormones, including oestrogen. This means EDCs may trigger actions similar to those initiated by oestrogen, and so may increase breast cancer risk (15). Oestrogen increases risk as it encourages a high rate of (breast) cell division, increasing the possibility of mutations, including those that may lead to breast cancer (16).

Polychlorinated biphenyls are an example of banned flame retardants that are toxic, EDCs and known to increase breast cancer risk (17). Currently used flame retardants may also increase risk; for example, certain brominated flame retardants (BFRs) increase incidence of mammary tumours in rodents (18) and many BFRs are EDCs that affect oestrogen (19).

There is growing debate as to whether flame retardants reduce the risk of fire deaths or injuries significantly. Furthermore, they may increase toxicity of fumes released in fires (20, 21, 22, 23). Breast Cancer UK believes that measures which do not pose a risk to human health should be encouraged as a priority to promote [fire safety](#), including increased use of smoke detectors in the home, improved product design with inherent fire safety levels and use of less toxic flame retardants.

For a list of references cited above please see [here](#)

Discover More

- For more information on flame retardants and their possible link to breast cancer, download our detailed scientific information brief [here](#).
- For more information on our policy and campaign work on flame retardants see [here](#)