

Fire Retardants Friend or Foe?

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Fire retardant chemicals were developed for children's clothing when synthetic fabrics became popular. Most synthetics such as polyester are plastics and will melt to the skin when it catches fire; some fabrics can even be combustible. Natural fibers such as organic cotton, linen, wool and hemp do not pose a danger of melting when exposed to flames.

Without knowing it, parents are exposing their children to toxic chemicals in clothing that could have serious future consequences for their health and the environment. Children are usually more vulnerable to the effects of chemicals than adults. "The presence of these substances in children's clothing is particularly alarming," says Dr Richard Dixon, Head of WWF Scotland

PBDE stands for a group of chemicals called polybrominated diethyl ether. They are chemically similar to PCBs. These similarities raise concerns because PCBs have been banned from production decades ago due to its proven human toxicity. The main differences between the two chemical groups are that PBDE's contain bromine where PCBs have chlorine, and unlike PCBs, PBDE's are not chemically bound to plastic. What this means is that it is not necessary to burn or chemically change the PBDE containing product in order for it to get into the environment.

PBDE is a chemical commonly used as a flame retardant to protect items such as cushions in sofas and car seats, and to coat children's clothing and industrial clothing. It is also used in the

plastics of televisions, computers, and other electronic equipment. Since it not bound to plastics, it can enter the environment much more easily, sometimes directly through evaporation.

PBDE's accumulate in the fat of fish, animals, and humans. It bioaccumulates, meaning it does not easily decompose in the environment or in the body. Large amounts of these chemicals enter the environment by the decomposition of discarded items. The items break down quickly in the sunlight, the dust then disperse the PBDE's into dirt and water. Eventually it is eaten and stored in the animals we eat.

Babies are exposed through breast milk since it accumulates in fat and mother's milk. There have been drastic increases of PBDE's in women's breast milk. Animals both wild and domestic have PBDE levels from 2,000 to 47,000 parts per billion. Children are also exposed when breathing vapors from clothing or when indoors around products.

The concern right now is that PBDE's have not been widely recognized by the government as a toxic substance, even though it bears a striking resemblance to PCBs. That fact coupled with the fact that industries fights for its positive use as a flame retardant make it one of the most growing and potentially dangerous chemicals in the environment. Levels have increased 300-400 times in North America since 1978.

Scientists are hard at work researching the harm it causes in humans. It is a newly examined chemical and there are no benchmarks for what levels of exposure are safe. What is known is that it is extremely similar to other toxins and that its levels are growing in the environment and in humans. Since it is similar to other toxic chemicals, it is a safe assumption that it too is

chemically toxic to humans. Animal studies have indicated results very similar to those of known toxic chemicals

Recent research suggests it does accumulate over one's lifetime in fat tissue. Children are particularly susceptible to exposure because many pajamas and clothing are coated with PBDE's, and children's diets have a higher concentration of fat. Preliminary studies indicate such harmful effects as they interfere with brain development, can alter hormone function, and are linked to cancer.

Precautionary action should be used. Since it is a potential health risk we should treat it as such; Dangerous. The effects in a developing system is much more drastic than in an adult and include potential harm to the developing brain as well as possible hormone disruption which could lead to unknown results

If you think about it, the purpose of fire-retardant pajamas is a bit odd. If flames get that close to a sleeping child, wouldn't the smoke get there first? And really, all it can do is possibly slow it down, not entirely protect, the child. Even if it offers a minimal fire protection this would only include the areas covered by the fabric. It makes one wonder how much is merely marketing and feeding off a parent's fears.

Your kids are better off in close fitting pjs or night shirts made of natural fibers such as 100% cotton, linen, wool or hemp which will not melt to the skin, rather than toxic "flame-resistant"

synthetic fabrics. Using Borax as a laundry detergent is a much safer way to add fire resistance to clothing.

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Since 1999, Judie has been aggressively researching a wide range of subjects, particularly those pertaining to human health and environmental issues. Judie has written for local, regional and national publications.