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WORK SHOULDN'T HURT

Polychlorinated Biphenyls (PCBs) in Caulk (Sealants)

What are Polychlorinated Biphenyls (PCBs)?

Polychlorinated biphenyls (PCBs) are a group of man-made chemicals that can cause a number of different harmful effects. PCBs are either oily liquids or solids and are colorless to light yellow. Some PCBs may exist as a vapor in air. They have no known smell or taste. There are no known natural sources of PCBs in the environment. PCBs were used mainly in making electrical transformers but some were used in building materials. Small amounts of PCBs can be found today in almost all outdoor and indoor air, in soil, sediments, and in surface water throughout the US, despite the fact that PCBs were banned in 1977.

Why are PCBs in Caulk?

PCBs were added to caulking materials to make them stronger and more flexible. These materials were used on many brick buildings including many schools, commercial buildings, residential apartment buildings and hospitals. PCBs were used in caulks from 1940 until they were banned in 1977 because of concerns about the environmental and health effects. Not all caulk contains PCBs. It is not possible to distinguish between non-PCB caulk and PCB caulk without a laboratory test.

How are People Exposed?

There are three main routes of exposure to PCBs. Some studies indicate that caulk containing large amounts of PCBs can release them into the air, especially if the caulk is disturbed. If you breathe air that contains PCBs, they can enter your body through your lungs and pass into the bloodstream. Another way for PCBs to enter your body is

by eating meat or fish products or other foods that contain PCBs. The major route of exposure for the US population is through the consumption of contaminated fish. It is also possible that PCBs can enter your body through skin contact if you directly handle PCB-containing caulk.



What are the Risks in my School?

PCBs are not present in all caulk. Schools built before 1940 and after 1977 are not likely to have any PCB-containing caulk and buildings where the windows have been replaced will have less PCB caulk. The presence of PCBs in caulk does not indicate an immediate hazard. Caulking that is intact and in good condition presents a very low risk. The few small studies done of buildings with PCB-containing caulk suggest that the levels of exposure are very low and less than exposures received from the ingestion of fish. To minimize exposure it is important to maintain the caulking in good condition and to remove caulk when it is in poor condition. The most important precaution is to prevent disturbing caulk during renovation and demolition of the exterior facade and windows. In addition, it is important to limit direct contact with the caulk and surrounding areas.

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Health Effects

PCBs in the body are not easily broken down or excreted and levels tend to accumulate in the body over time. It is therefore important to minimize exposure.

Babies born to mothers who have been exposed to very high levels of PCBs in pregnancy may have lower birth weights, as well as decreased intelligence, developmental delays and behavior problems during childhood.

Children exposed to very high levels of PCBs may have acne or other skin rashes, numbness and tingling of the legs and possibly liver damage. Developmental effects on children exposed to PCBs after they are born are not as significant but information is limited.

PCBs have been found to cause cancer in animals. Cancer studies in humans are inconclusive; however PCB's are considered probable human carcinogens.

are difficult to interpret and are only usually measured in research studies.

For more information, contact the AFT health and safety team at 4healthandsafety@aft.org

Regulations and Permissible Limits of PCBs

There are no governmental standards requiring the testing of building materials including caulk for the presence of PCBs, nor are there regulations requiring the removal of PCB containing caulk.

The Environmental Protection Agency (EPA) has set a limit in air of 730 nanograms of PCB per cubic meter (ng/m³). Data obtained by the EPA in the outdoor air of the five boroughs of New York averaged 0.38 ng/m³ which is considered the background level of PCBs in New York City.

The EPA regulates the disposal of PCBs in materials. Materials containing 50 parts per million (ppm) or more of PCBs must be disposed of as a hazardous material. The EPA has established an upper limit in surface wipes of 2 micrograms per square foot (ug/ft²).

The UFT has contacted the New York City Department of Health and the EPA and requested their input on the evaluation and management of PCB caulk in schools.

Medical Tests

All people in industrial countries have some PCBs in their bodies. There are tests to determine whether PCBs are in the blood and body fat; however every person will show some level because everyone is exposed to some PCBs. There are no standard reference levels to define a normal level of exposure to PCBs. As such, levels of PCBs in blood