

Safety Spotlight

PCBs in Caulk

PCBs: What Are They?¹

Polychlorinated biphenyls (PCBs) are man-made chemicals that persist in the environment and were widely used in construction materials and electrical products prior to 1979. PCBs can affect the immune system, reproductive system, nervous system and endocrine system and are potentially cancer-causing if they build up in the body over long periods of time. Congress banned manufacture and use of PCBs in 1976 and they were phased out in 1979 except in certain limited uses.

PCBs in Caulk: Fast Facts¹

- PCBs may be present in the caulk used in windows, door frames, and masonry columns, and other building materials in many schools and other buildings built or renovated between 1950 and 1979.
- In some cases, PCBs represent a high percentage of the caulk, e.g. 100,000 parts per million (ppm) or higher.
- Because PCBs can migrate from the caulk into air, dust, surrounding materials and soil, the EPA is concerned about potential PCB exposure to school children and other building occupants.
- The link between PCBs in caulk and exposures to PCBs in the air or dust is not well understood. The EPA has conducted research to better understand the link between PCBs in caulk and exposures to PCBs in the air and in dust.
- People are exposed to PCBs from many sources, including diet, but air or dust levels in buildings may account for a significant portion of exposure. The air levels of PCBs to which individuals may be exposed vary depending on the age of the person exposed and the amount of time the person spends in building areas where PCBs are present. EPA has calculated prudent public health levels that maintain PCB exposures below the "reference dose" – the amount of PCB exposure that EPA does not believe will cause harm. Those levels vary depending on the age group and use assumptions about potential PCB exposures in schools and from other sources, such as diet.

Immediate Steps to Reduce Exposure²

Though this is a serious issue, the potential presence of PCBs in schools and buildings should not be a cause for alarm – there are steps school administrators and building owners can take to protect students, teachers and others. One important step that a school system can do is to minimize the potential for PCBs to be present in the indoor air. Indoor air levels of PCBs within a school can be reduced by ensuring that the ventilation system is operating as designed, and to repair or improve the system if it is not.

¹ "Learn about Polychlorinated Biphenyls (PCBs)," EPA, Environmental Protection Agency, 13 Apr. 2018, www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs.



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EPA Recommended "Best Practices" to Minimize Potential Exposure²

- Clean frequently to reduce dust and residue inside buildings
- Use a wet or damp cloth or mop to clean surfaces
- Using vacuums with high efficiency particulate air filters
- Do not sweep with dry brooms; minimize the use of dusters
- Wash children's hands with soap and water often, particularly before eating
- Wash children's toys frequently
- Wash hands with soap and water after cleaning, and before eating or drinking

Testing the Air for PCBs and Addressing Elevated Levels²

If school administrators and building owners are concerned about exposure to PCBs and wish to supplement these steps, EPA recommends testing to determine if PCB levels in the air exceed EPA's suggested public health levels.

Schools should attempt to identify any potential sources of PCBs that may be present in the building, including testing samples of caulk and looking for other potential PCB sources (e.g., old transformers, capacitors, or fluorescent light ballasts that might still be present at the school). While it is possible that PCBs could be released into the environment through the cracking or flaking of caulk, EPA believes the old caulk that is still flexible or is in visibly good condition could be a significant source of PCBs into the air. The only way to be sure that caulk has PCBs is to have a professional test the caulk.

If elevated air levels of PCBs are found, schools should have the ventilation system evaluated to determine if it is contaminated with PCBs. Although the ventilation system is unlikely to be an original source of PCB contamination, it may have been contaminated before other sources of PCBs were removed from the school and may be contributing to elevated air levels. Contaminated ventilation systems should be carefully cleaned. Ideally, such cleaning should be planned in concert with removal of any sources of PCBs that are found to avoid re-contamination of the system.

During the search for potential sources, schools should be especially vigilant in implementing to minimize exposures and should retest to determine whether those practices are reducing PCB air levels. If these measures do not reduce exposures, caulk and other known sources of PCBs should be removed as soon as practicable.

² "Practical Actions for Reducing Exposure to PCBs in Schools and Other Buildings." EPA, 28 July 2015.

² This is a sample guideline furnished to you by Fleury Risk Management, Group Manager. Your organization should review and make the necessary modifications to meet the needs of your organization. The intent of this guideline is to assist you in reducing risk exposure to the public, personnel, and property.
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Removal of PCB-Contaminated Caulk During Renovations and Repairs²

- Where schools or other buildings were constructed or renovated between 1950 and 1979, EPA recommends that PCB-containing caulk be removed during planned renovations and repairs (when replacing windows, doors, roofs, ventilation, etc.)
- It is critically important to ensure that PCBs are not released into the air during renovation or repair of affected buildings. EPA is recommending simple, common sense work practices to prevent the release of PCBs during these operations.
- Assessment of the ventilation system for potential contamination, proper cleaning when required, and isolation of the system to prevent further contamination are also important.
- Encapsulation of PCB-containing Caulk Based on EPA's Office of Research and Development's laboratory research, encapsulation was found to be most effective for interior surfaces that contain low levels of PCBs (i.e. several hundred parts per million).
- Depending on the PCB reduction goal, the performance of the encapsulant, and the conditions of the building, the upper limit of the PCB concentration for successful encapsulation may vary. Therefore, post-encapsulation monitoring is an essential part of the encapsulation process. Building owners should consult EPA's research on this issue for more specifics (see ORD report).
- Encapsulation may be useful for the reduction of emissions from secondary sources such as contaminated building materials under and around PCB-containing caulk or paint that has been removed. Encapsulation was not found to be effective in reducing emissions from sources that have a high PCB content (for example caulk) for more than a short period of time. Because each site will present unique circumstances, please consult your EPA PCB Regional Coordinator regarding the application of encapsulation measures on a case by case basis.

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