



- TITLE:** PCBs Present in Sealants
- DESIGNATION:** IIBEC-TA-006-2014
- OBJECTIVE:** To provide informative advisory regarding the potential for sealants located in exterior walls of buildings to contain polychlorinated biphenyls (PCBs) at levels that warrant certain measures.

## A. BACKGROUND

PCBs were a common additive to sealants because of their water and chemical resistance, durability, and elasticity. PCBs were added as a plasticizer in sealants used primarily to seal joints between masonry units and around windows. Sealants containing PCBs were employed in some buildings, including schools, primarily between 1950 and 1980. PCBs were also used in other building materials such as paints, mastics, adhesives, and specialty coatings. Although the use of sealants containing PCBs has long since been prohibited, these types of sealants may still be present in existing buildings where new sealants were applied over the top of the existing sealant or where general lack of long-term maintenance has not addressed the existing conditions.

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. Due to their nonflammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications, including electrical, heat transfer, and hydraulic equipment; and as plasticizers in paints, plastics, rubber products, and building caulk. PCBs were manufactured domestically starting in 1929, until they were banned from manufacture in 1979.

Exposure to PCBs can cause a variety of adverse health effects in animals and humans. In animal studies, PCBs have been shown to cause cancer as well as serious noncancer health effects. In humans, PCBs are potentially cancer-causing and can cause other noncancer effects, including immune system suppression, liver damage, endocrine disruption, and damage to the reproductive and nervous systems.

## B. RISKS

The potential risks identified by the Environmental Protection Agency (EPA) include touching or inhaling dust produced from a deteriorating PCB-containing sealant. Potential exposure may also occur by individuals who practice maintenance and/or repairs on buildings that involve the routine replacement of building sealants. The EPA also indicates that PCBs may leach into building materials such as wood, masonry, etc. that are in direct contact with the PCB-containing sealant.

## C. DISCUSSION

Renovation or restoration projects on existing buildings often include the replacement of deteriorated sealants in joints located on the exterior skin of the building. The designers and contractors involved in such projects should be aware of the potential for PCBs in existing sealants, as disturbance of these sealants may result in contamination of

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adjacent interior and exterior areas. At this time, the EPA has not required widespread sampling and testing of public and commercial buildings. The EPA has, however, established guidelines for testing of sealants and testing of interior air for PCBs. These guidelines can be found online at <http://www.epa.gov/pcbsincaulk/guide/guide-sect3.htm>.

Since PCB release can result in public health hazards, it is recommended that owners, contractors, and designers involved in renovation projects on older buildings retain qualified hazardous materials consultants to determine the presence of PCBs in sealants and to develop an appropriate remediation response. Not only should the actual sealant be tested for PCBs, but adjacent building materials (e.g., brick, cinder block, or wood) should also be tested, as PCBs in sealant can migrate into surrounding material.

For determining the presence of PCBs in indoor air, EPA has two approved methods: *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air – Compendium Method TO-4A (high-air volume) and Compendium Method TO-10A (low-air volume)*.

#### D. ISSUES

The possible issues to consider include the following:

- Potential for worker and public exposure to PCBs as the result of disturbance of the sealant
- Potential for PCB contamination of interior and exterior areas adjacent to subject work areas
- Potential for PCB contamination of surrounding building materials