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Basics about PCBs in schools

What are PCBs?

Polychlorinated biphenyls (PCBs) are human-made chemicals that were used in building materials and electrical equipment before 1980. Examples of products that may contain PCBs include caulk, paint, glues, plastics, transformers, capacitors and fluorescent lighting ballasts.

Old lighting ballasts may contain PCB oil and, as the ballasts age, the PCB oil can leak onto nearby surfaces or produce vapors in the air. Similarly, if caulking containing PCBs deteriorates, PCBs may be released into the dust or air.

Are PCBs found in schools?

Schools renovated or built before 1980 are more likely to have PCBs in their building materials, typically caulk and fluorescent light ballasts.

The U.S. Environmental Protection Agency (EPA) banned manufacturing and certain uses of PCBs in 1979. Schools in Vermont may have also taken part in a fluorescent light ballast change-out in 1995 thereby reducing the likelihood of the ballasts being a continued source of PCBs.

How are students and staff exposed to PCBs in a school building?

PCBs can be released into indoor air from building materials that contain PCBs. Students and staff may be exposed to PCBs by:

- Breathing in dust or vapors that contain PCBs.
- Getting dust containing PCBs on their hands and then swallowing it while eating or drinking.
- Skin contact with materials that contain PCBs.

Do PCBs affect the health of students and staff?

PCBs can cause serious health effects. The potential for health effects from PCBs, as with other chemicals, depends on how much, how often, and how long someone is exposed to them.

Numerous studies in both humans and animals have shown that exposure to PCBs can affect the nervous, immune, reproductive and endocrine systems. PCBs are also classified as probable human carcinogens. This means that exposure to PCBs can likely cause cancer in humans.

Additionally, the different health effects of PCBs may be interconnected. This means that if one system of the body is affected by PCBs, it may have significant effects on the other systems of the body, which can lead to many serious health problems.

Find more details on health effects from exposure to PCBs.

Should I have my blood or my child's blood tested for PCBs?

The Health Department does not recommend testing to find out what level of PCBs are in your body. Almost everyone has some level of PCBs in their blood.

A blood test will not be able to tell you if the PCBs are from the indoor air in your school or from our diets (PCBs are commonly found in meat, dairy and seafood). A blood test cannot tell you whether your exposure to PCBs will cause health problems or if a condition you have was caused by exposure to PCBs.

Requirements for testing and reducing exposure in schools

What are Vermont's requirements for PCBs in schools?

In 2021, a new Vermont law passed (Act 74) requiring all schools – public and independent – built or renovated before 1980 to test their indoor air for PCBs by July 2024. Vermont is the first state in the nation to require testing of PCBs in the indoor air of schools.

In addition to testing, DEC has authority to require that schools make fixes to reduce exposure to PCBs if levels are found at or above the school action level.

Are schools required to test for PCBs?

Yes. By law all schools – public and independent – that were constructed or renovated before 1980 are required to test their indoor air for PCBs by July 1, 2024.

When will my school be tested?

The list of schools that are required to test for PCBs in indoor air will be posted on the PCBs in Schools web page. The schedule will be updated as the dates are confirmed.

Who is responsible for testing the indoor air of schools?

While funds are available, DEC has hired consultants to do the indoor air testing for PCBs at the schools.

Who is responsible for making fixes to reduce exposure to PCBs?

Schools are responsible for making any fixes to reduce exposure to PCBs. The State will provide guidance to help schools determine which fixes may work best for their unique situation.

There are currently no state funds allocated for schools to identify sources of PCBs or to pay to make fixes to reduce exposure to PCBs. Schools will be responsible for any costs to make the fixes and to do any follow-up testing.

Do schools need to pay for anything?

The legislature granted $4.5 million to test for PCBs in the indoor air of schools. While funds are available, the State has hired consultants to do the indoor air testing at schools. Schools are required to test regardless of funding availability.

However, there are currently no funds allocated for determining what the sources of PCBs are or to make any fixes to lower exposure to PCBs.

What happens if a school doesn't test for PCBs?

Schools are only required to test if they were built or renovated before 1980. Schools that are required to test and do not comply will be in violation of statutory requirements.

Is any follow-up or additional testing required?

Follow-up testing will be required if any result is at or above the school action level. Additional monitoring may be required if results are close to the school action level.

If a school decides to change the occupancy type of the building (for example, a 7th grade room is changed to a kindergarten room), the school may be required to do additional testing.

Results

How long will it take to get results?

The testing process from start to finish is expected to take approximately six to eight weeks. This includes time from when the building inventory is completed to when a school will receive results and next steps from the State.

Where can I find the PCB testing results for schools?

Results will be posted on the PCBs in Schools web page seven days after the school receives the result letter from the State.

How are the results being communicated to schools?

Once the State has reviewed the test results for a school, a letter will be sent to the school that lists the results and next steps.

What are school action levels for PCBs in indoor air, and what do they mean?

School action levels are based on the amount PCBs found in the indoor air at a school. The State of Vermont has established three different action levels for schools, depending on the age of the students. Younger children tend to have more exposure to PCBs from their diet, so the levels for younger children are more stringent than those for older children and staff. The three school action levels are:

- 30 nanograms per cubic meter (ng/m^3) for Pre-K
- 60 ng/m^3 for kindergarten to 6^{th} grade
- 100 ng/m^3 for 7^{th} grade to adult

What are the immediate actions levels for PCBs in indoor air, and what do they mean?

The immediate action levels are three times higher than the school action levels. Since these levels pose a greater exposure risk, no room at or above these levels will be able to be used. The three immediate action levels are:

- 90 ng/m^3 for Pre-K
- 180 ng/m^3 for kindergarten through 6^{th} grade
- 300 ng/m^3 for 7^{th} grade to adult

What happens if results are below the school action level?

Each school will receive a letter from the State that lists the PCBs in indoor air test results and next steps. If levels of PCBs are **below** the school action level in all rooms tested, then changes in occupancy are not needed.

What happens if PCBs are found at or above the school action level?

Each school will receive a letter from the State that lists the PCBs in indoor air test results and next steps. If levels of PCBs are **at or above** the school action level, then sources of PCBs are likely present. The State will work with school administrators to investigate and provide recommendations on how to reduce exposure.

In most cases, school administrators will have a variety of options to reduce PCB exposure for students and staff without closing the facility. In general, there are four temporary occupancy options that schools can choose from while they are working with the State to address the sources of PCBs.

Schools can find more information from the EPA on practical actions for reducing exposure to PCBs.

Why is it okay for students and staff to stay in rooms that are over the school action level?

There are four temporary occupancy options that schools can choose from while they are working with the State to address the PCB sources. Options 3 and 4 allow for occupying rooms over the school action level, but the school is expected to take steps within six weeks to lower the indoor air levels in those rooms. This short timeframe means that students and staff will not be exposed for a very long time.

For school facility managers and maintenance staff

Why is caulk a potential source of PCB exposure?

If caulk contains PCBs, the PCBs may be released into the air through off-gassing. This may happen when the caulk is intact and undisturbed, or if it is deteriorating. PCBs originating from caulk can become airborne and absorb into other building materials, creating secondary sources which can then re-emit PCBs into the air.

PCBs in manufactured materials such as caulk may also move directly into adjoining materials, particularly porous materials such as wood, concrete, and other types of masonry. PCBs from exterior caulks may also leach into surrounding building materials and soil from precipitation and deterioration of the caulk, and from disturbances during renovations or construction.

How many schools and other buildings built or renovated before 1980 may have PCB-containing caulk?

The EPA is concerned that there is potential widespread use of PCB-containing building materials in schools and other buildings constructed or renovated before 1980.

Are PCBs present in paint used in schools and other buildings built or renovated before 1980?

PCBs were added to some specialty paints and coatings to improve their performance. PCBs have been found in paint on walls in some schools and other buildings. PCBs in specialty paint may move directly into adjoining materials, particularly porous materials such as wood, concrete, and other types of masonry.

What are examples of secondary sources of PCBs?

When PCBs from the original source move into other materials in buildings, this is known as a secondary source. Examples of secondary sources of PCBs include dust, paint, laminates, wood products, masonry, foam furnishings, ceiling tiles, floor tiles and carpet. In schools with PCB sources, many different kinds of building materials have been found to have measurable levels of PCBs and are potential secondary PCB sources.

There are two main ways secondary sources can happen in schools and other buildings:

1. PCBs can be emitted from the original source materials into the air inside schools and other buildings. PCBs in the air are then absorbed into other building materials, components, furnishings and dust.
2. PCBs in the original source materials, such as caulk, may move directly into adjoining materials, particularly porous materials such as wood, concrete, and other types of masonry.

What do we know about PCB concentrations in the soils surrounding schools and other buildings constructed or renovated using PCB-containing building materials?

The soils surrounding schools and other buildings can be contaminated with PCBs originating from PCB-containing building materials, particularly from exterior caulks and sealants. In general, although not in all cases, measurements have indicated that higher concentrations of PCB-contaminated soils are found closest to the schools and other buildings

What can be done to reduce PCB exposures in buildings?

Potential exposures to PCBs should be minimized. Proper cleaning and building maintenance can minimize exposure to PCBs from building materials. Below are some practical tips from the EPA.

Building managers and maintenance staff should:

- **Reduce the potential for PCB exposure.** Maintain building materials and electrical products in good condition. Conduct visual inspections routinely to identify and remedy deteriorating caulk and leaking lighting ballasts.
- **Maintain good air flow in buildings**. Conduct routine inspections and maintenance of HVAC and ventilation systems to ensure these are functioning properly. HVAC and general ventilation supply and exhaust fans should be operated while schools are occupied to optimize ventilation and air circulation.
- **Clean buildings thoroughly and frequently.** Use a wet mop or damp cloth to clean all accessible horizontal and vertical surfaces regularly. Use vacuums with high-efficiency filters to avoid spreading fine particles.
- **Use HEPA filters with activated carbon**. These filters can be effective at reducing indoor air levels of PCBs.

General precautions for teachers, students, parents, and caregivers:

- Wash hands with soap and water after cleaning and before eating or drinking.
- Wash children's toys regularly.
- Keep children from touching caulk or surfaces near caulk.
- Report damaged caulking or leaking ballasts to building manager.