

Mercury-Containing Flooring in New Jersey Schools

Information for Parents

The purpose of this fact sheet is to describe the New Jersey Department of Health's (NJDOH) regulatory approach to protecting children and staff from exposures to mercury vapors from flooring in schools.

Why do some floors in schools contain mercury?

Some schools might have installed floors that may contain mercury. The types of floors that may contain mercury are solid, rubber-like synthetic flooring manufactured from about 1960 until the early 2000s. This flooring, commonly used in gymnasiums and all-purpose rooms, was installed using a catalyst known as phenyl-mercuric-acetate (PMA). The PMA catalyst helps produce the solid, rubber-like floor. Over time, this type of flooring may emit elemental mercury vapor into the air under certain conditions.

What conditions will cause the release of mercury vapor from the flooring?

In schools that have this type of flooring installed, the level of mercury vapor in the air varies and is dependent on factors such as temperature, ventilation, and the condition of the floor. It is important to note that 1) not all synthetic flooring contains mercury and 2) not all flooring that contains mercury emits mercury vapor into the air.

How can my children be exposed to mercury contained in the flooring?

Breathing mercury vapor in the air is the most likely way for children to be exposed to mercury contained in the flooring. When elemental mercury vapor is inhaled, it enters the bloodstream and is carried throughout the body. Ingestion or skin contact with dust containing mercury vapor are two less likely potential sources. Additionally, mercury is minimally absorbed by the body through ingestion or skin contact.



Is exposure to mercury vapor from flooring a health concern?

The health impact of exposure to mercury vapor depends on a number of factors including the following:

- The level of mercury vapor in the air
- The amount of time spent in the room/area with the mercury containing flooring (number of hours per day, days per year, and years)
- The age of the person (younger children are more vulnerable to the impacts of mercury exposure)

Your school will provide you with the indoor air test results, which will inform you if mercury was detected in the air in your school. Mercury levels in air are usually reported in micrograms of mercury per cubic meter of air ($\mu\text{g}/\text{m}^3$).

What are the guidance values for mercury in air?

Guidance values are the level of mercury in the air that is *unlikely* to produce harmful effects assuming continuous exposure over a person's lifetime.

- There are guidance values for mercury vapor in air which are all primarily derived from the same toxicological studies in workers.

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- To develop a guidance value, scientists apply protective factors to the actual concentration where health effects were observed.
- The actual concentration of mercury where health effects were noted in workplace studies is $25 \mu\text{g}/\text{m}^3$.
- The U.S. Environmental Protection Agency's (USEPA) guidance value of $0.3 \mu\text{g}/\text{m}^3$ for mercury is based on the actual concentration of $25 \mu\text{g}/\text{m}^3$ where health effects (such as hand tremors, memory disturbance) were observed.
- This guidance value of $0.3 \mu\text{g}/\text{m}^3$ was calculated by adjusting the actual dose to account for a longer exposure period than in a workplace, different sensitivities among individuals, and other protective factors.
- The $0.3 \mu\text{g}/\text{m}^3$ guidance value is for a **residential** setting, assuming a person will be exposed 24 hours a day for 7 days a week over the course of a lifetime.

What level of mercury in air warrants a New Jersey school to take action?

- In evaluating the potential public health impacts from environmental exposures in child care centers and educational facilities, the NJDOH uses a conservative regulatory approach (N.J.A.C. 8:50) to develop a site-specific guidance value to be protective of the most sensitive populations.
- This approach incorporates the USEPA's guidance value of $0.3 \mu\text{g}/\text{m}^3$ for **residential** settings and adjusts it for a **school** scenario.
- The NJDOH guidance maximum contaminant level (MCL) for **schools** is $0.8 \mu\text{g}/\text{m}^3$. This number was calculated based on the most vulnerable age in schools, 3-year olds, and incorporates their body weight and increased inhalation rate into the model. This is a level of mercury in indoor air at which we do not expect any harmful health effects among children, as young as age 3. This conservative approach assumes an exposure for 8 hours per day, for 180 days a year, assuming continuous exposure over a lifetime.

My school tested for mercury in the indoor air and the levels are ABOVE $0.8 \mu\text{g}/\text{m}^3$. What will be done next?

If your school officials have determined there is mercury present in the indoor air above the guidance MCL, they must take steps to reduce these levels and continue to monitor. Reductions could be achieved by increasing ventilation, managing temperature, or removal of the flooring.

My school tested for mercury in the indoor air and the levels are LOWER or EQUAL to $0.8 \mu\text{g}/\text{m}^3$. What will be done next?

If your school officials have determined there is flooring that contains mercury and the level of mercury in indoor air is below the guidance MCL, then they must do the following:

- Maintain the room temperature and ventilation system to remain consistent with the operations at the time of sampling;
- Conduct quarterly sampling for one year to ensure the impact of seasonal variability on mercury levels is captured;
- Continue to monitor and resample if there is deterioration of the flooring.

Please see links below for information regarding concerns about health impacts to children resulting from exposure to mercury vapors in flooring:



Advice for Parents from Environmental Pediatricians: <https://bit.ly/2QWHwT9>

You can also visit the Pediatric Environmental Health Specialty Unit (PEHSU) website at: <https://www.pehsu.net/>