

Washington Township Board of Education Mercury in Gym Flooring Frequently Asked Questions

1. What is mercury?
 - a. Mercury is a chemical element with symbol Hg and is commonly known as quicksilver. A heavy, silvery element, mercury is the only metallic element that is liquid at standard conditions. Mercury is present throughout the world mostly as cinnabar (mercuric sulfide). Mercury is used in thermometers, barometers, mercury switches, relays, fluorescent lamps and other devices.
2. Why is there mercury in the gym flooring?
 - a. While there is no clear answer, we know that Phenyl mercuric acetate is often used as a catalyst during the installation of synthetic, rubberized gymnasium flooring. A catalyst is used in small amounts because it speeds up the chemical reactions involved in the drying or curing of the flooring material but itself remains unaffected during the reactions.
3. What are the allowable exposure limits?
 - a. Current occupational exposure thresholds for mercury and a brief description of each is as follows:

OSHA Permissible Exposure Level (PEL)- 100 $\mu\text{g}/\text{m}^3$ (TWA.)

During the establishment of PELs, OSHA considers human exposure studies, animal studies, feasibility, and economic and social impact.

NIOSH Recommended Exposure Limit (REL)- 50 $\mu\text{g}/\text{m}^3$ (TWA.)

During the establishment of RELs, NIOSH evaluates medical, biological, engineering, chemical, and trade information relevant to the hazard, then publishes recommendations to OSHA to develop a legally enforceable standard.

ACGIH Threshold Limit Value (TLV)- 25 $\mu\text{g}/\text{m}^3$ (TWA.)

Threshold limit values are defined by the American Conference of Government Industrial Hygienist corporation as the concentration of chemical substance which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse effects. TLVs are based solely on health factors.

4. What levels of mercury are considered safe for school children?
 - a. The New Jersey Department of Health has answered this question through a published fact sheet, Guidance for New Jersey Schools: Evaluating Mercury in Synthetic Flooring.” It can be found at

https://www.nj.gov/health/ceohs/NJDOH_mercury_flooring_guidance.pdf

After initial sampling and adjustments made to the ventilation system, mercury vapor concentrations at all Washington Township schools were below the NJDOH guidance value of $0.8 \mu\text{g}/\text{m}^3$.

5. Is mercury a carcinogen?
 - a. According to the Agency for Toxic Substances and Disease Registry (ATSDR), mercury is not classifiable as a human carcinogen, although the EPA classifies mercury chloride and methyl mercury as possible human carcinogens. These are not the forms of mercury in rubberized flooring. The web link for this information is

<https://www.atsdr.cdc.gov/phs/phs.asp?id=112&tid=24>

6. Why were wipe samples not collected to determine the amount of mercury in the settled dust?
 - a. The gymnasiums were closed for normal use in an abundance of caution. As part of the flooring remediation work, a request for proposals (RFP) is being developed for private firms to clean and temporarily store all moveable objects outside of the building until being re-used by students and staff.

Wipe sampling of surfaces would only provide information on the presence or absence of mercury on the surfaces. There are no standards for the interpretation of the results, i.e. there is no correlation of a surface concentration to a specific vapor concentration. Moreover, unlike lead, which has an exposure route by ingestion, exposure to mercury is not by absorption through the skin or through the stomach and intestines; unless in extreme amounts (such as when children find discarded liquid metallic mercury.) Refer to Bethel University Health Consultation; February 5, 2008; by US Dept. of Health and Human Services, and ATSDR. Lastly, the routine cleaning of the school using regular water and soap solutions will remove any small amounts of mercury dust which may accumulate since the previous cleaning.

7. Why were not air samples collected under “worst-case” conditions, such as during the summer?
 - a. Air sampling under normal conditions was set as a priority to evaluate vapor concentrations in spaces as they were when occupied. The gymnasiums have been closed and it is the intention to remove all of the mercury containing floors during the 2019 summer recess.

Air sample results are often referred to as “a snap shot in time.” This is because an airborne chemical concentration fluctuates greatly based on temperature, pressure, its source, and ventilation. The “worst case” scenario of closing all windows and doors and shutting off the ventilation system for 24 hours would provide useful data with regard to the evaluation of allowing the use of the gymnasiums in the summer months while maintaining the floor in place. Since the gyms will be closed this summer pending the replacement of the floors, worst case scenario testing is not appropriate. Further, this data would not provide an accurate exposure assessment of historic vapor concentrations to staff and occupants in past summers since these conditions are likely not representative of the conditions of the past and the duration of occupancy.

8. If the concentration of mercury vapors were addressed and below the NJDOH guidance values, why was the use of the gyms suspended?
 - a. As set forth in the April 2, 2019 letter to the WTPS Family and Staff from the Superintendent, although the test results and data presented by our District engineer and certified industrial hygienist indicated that our gyms tested well below the NJDOH Guidelines, and that the continued use of the gyms do not present any short- or long-term health risk based on the most advanced air quality testing, the decision was made to temporarily close the gyms as the most prudent step designed to put the minds of our community, our staff and our students at ease. With milder spring weather allowing for physical education to occur by outdoor activity, the gymnasiums were closed in an abundance of caution.

9. Will the floor remediation work start while school is in session?
 - a. No, the floor removal will not begin until school is closed for the summer recess. Some preliminary work, such as relocation of moveable objects and establishing work area isolation zones will likely begin prior to the summer recess.