

# Identify floors that may emit mercury vapor

By Adrienne Markowitz and Eileen Senn

Not all health hazards in schools are well-recognized. Until recently, very few people had heard that some rubber-like floors in school gyms, tracks, and other locations can emit mercury vapor. Investigations between 2003 and 2010 by five state health departments and the federal Agency for Toxic Substances and Disease Registry (ATSDR) were not well-publicized. NJEA first learned about this problem in Bergen County when a middle-school gym floor, which was being replaced, was tested and found to have high enough mercury levels to require disposal as hazardous waste. The local association wisely reached out to its UniServ field representative for help. NJEA asked industrial hygiene consultants from the NJ Work Environment Council (WEC) to research the issue and prepare a description of the problem, recommended actions, and feasible solutions.

NJEA shared these findings with the New Jersey School Boards Association (NJSBA), putting them on notice that it is the responsibility of local boards of education to eliminate any mercury exposures in schools from these floors. NJSBA put a notice about the floors on its website in January.

Now NJEA, WEC, and the Healthy Schools Now Coalition (HSN) are focused on educating and organizing school staff, students, parents and communities about the floors and reaching out to the media and state agencies including the New Jersey Schools Development Authority.

## The mercury floor problem and health effects

Rubber-like polyurethane floors using 1,000 to 2,000 parts per million (ppm) of phenyl cercuric acetate (PMA) catalyst have been installed in schools and elsewhere since the 1960s. PMA breaks down and releases odorless, colorless mercury vapor. The floors and items that have been in contact with them emit mercury vapor indefinitely.

Mercury vapor can damage the central nervous system, kidneys, lungs, skin and eyes and is especially harmful to young children and fetuses whose bodies are still developing. Therefore, children and pregnant, or soon-to-be pregnant, women and older students are the most vulnerable.

The risk varies depending on how much mercury a person is exposed to, how long and often a person is exposed, and his or her age and health status. School staff that spends the most time in rooms with mercury-containing floors is likely to have the most mercury vapor exposure. For gym floors, this would likely be physical education and athletic staff. Custodians who clean and maintain the floors may also have significant exposure, especially if they use methods that raise dust or abrade the floor, such as buffing or vacuuming.

The low-level mercury exposures anticipated from mercury floors will hopefully not lead to immediate adverse health effects among those exposed. Medical testing and treatment are not anticipated to be needed. But the levels of exposure will vary in each situation depending on floor condition and room temperature and ventilation. Some exposures may turn out to be quite high. And in most schools the exposures have been ongoing for decades. Therefore, exposed school staff who have health concerns and families that have health concerns about their exposed children should see the “For more information” sidebar for where to access specialized medical help.

## Local association action plan

School boards and district administrators may hesitate to identify mercury-containing floors because they perceive them as a problem that could be quite costly to address and upsetting to the public. Therefore, an organizing approach should be taken by school staff, parents and communities. A local association health and safety committee working with its UniServ field representative would be ideal to spearhead the effort. In addition, a joint union-management committee could be convened to deal with mercury floors.

## Find and report suspect floors

It isn't known how many of these floors currently exist, whether they are still being installed, or what schools have them. Local associations can help to find out in two ways. First, they can formally request the school superintendent to provide any information that confirms or rules out the presence of mercury in floors in the district. Second, they can explore each school, track, bus garage and administration building to note all rubber-like floors that match the description of suspect floors in the box titled “How to recognize a suspect floor.” Anyone aware of a floor meeting the description of a suspect floor should promptly report its location and description to local education association leadership.

## Test suspect floors and air for mercury

The only reliable way to determine whether a floor contains mercury is to collect several small, full-thickness bulk samples for analysis for mercury by an accredited laboratory. Therefore, locals should ask districts to test bulk samples of suspect floors. If floor bulk sampling results are above 1 ppm, a representative number of full-day, breathing zone air samples should be collected in the room for analysis for mercury by an accredited laboratory. If needed, a local association's health and safety

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## How to recognize a suspect floor

Suspect floors are synthetic polyurethane—not wood or vinyl tile. They are resilient and rubber-like, water-resistant, and may be tinted any color. They are usually one-piece and poured in place but sometimes pieced. They can be in school multipurpose rooms, gyms, cafeterias, auditoriums, stages, and indoor and outdoor tracks.

committee can go through its UniServ field representative to request technical assistance from WEC industrial hygiene consultants who can help in formulating next steps and in interpreting consultant reports and sampling results.

### Insist that districts implement solutions

After school boards and districts identify and test suspect floors, the local should insist that the district control exposures from, and eventually remove and replace, every mercury-containing floor. The local should insist that the district clearly and regularly communicates mercury risks and control measures with all those affected—staff, students, parents and families, contractors, and visitors. Everyone should be educated about the health hazards of mercury-containing floors and how to minimize their exposures. Signs warning of the mercury hazard should be posted in all locations with mercury-containing floors.

Districts must:

- Prevent installation of new mercury catalyst floors: If a new rubber-like floor is being considered for installation, a written statement should be obtained from the manufacturer that it does not contain a mercury catalyst.
- Do not cover or seal floors: Attempting to encapsulate, cover, or seal a mercury-containing floor may not be effective and may create more contamination and cost.
- Limit mercury exposures: Measures including keeping the floor and room cool and well-ventilated may limit mercury exposures. Ongoing air sampling in each season will be necessary.
- Remove mercury-containing floors using precautions: If air samples are above the most protective health-based levels, removal of the floors will be necessary. During removal, the floors will release substantially higher amounts of mercury, so trained contractors must use precautions to protect themselves and the school from being contaminated. The district must check with DEP Hazardous Waste at 609-943-3019 about disposing of the floors. 🗑️

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Not every polyurethane floor used mercury as a catalyst and not every floor which used mercury as a catalyst is a public health hazard. But some are, especially if they are damaged or deteriorated and in hot rooms with poor ventilation, no outdoor air being pulled in, and no air-conditioning.

## For more information

- ✓ “WEC, NJEA, HSN Alert: Mercury Hazard to Staff and Students from Rubber-Like Floors in Schools,” February 2017. Go to [njwec.org/2017/02/mercury](http://njwec.org/2017/02/mercury).
- ✓ Mercury Hazard in Schools from Rubber-Like Polyurethane Floors, Health and Safety Guide, First Edition, September 2016. (*Thomas will create a link for this document*)
- ✓ “Medical Treatment for an Elemental Mercury Exposure Incident,” 3-pages, December 2012. Mt. Sinai Selikoff Centers for Occupational Health. Go to [bit.ly/mercuryfactsheetsinai](http://bit.ly/mercuryfactsheetsinai).
- ✓ “Physicians in New Jersey specializing in occupational and environmental illness,” New Jersey Department of Health listing. Go to [bit.ly/environmentalillnessdocs](http://bit.ly/environmentalillnessdocs).
- ✓ “Pediatric Environmental Health Specialty Unit (PEHSU),” Icahn School of Medicine at Mount Sinai, New York, NY, 866-265-6201. Go to [icahn.mssm.edu/research/pehsu](http://icahn.mssm.edu/research/pehsu). PEHSU can provide clinical consultation and education to families, health care professionals, public health officials and community organizations that have concerns regarding children's environmental health.

