



Methylene Chloride — bathroom fixture refinishing

Recent Oregon incidents: One worker died and another became sick after an exposure to methylene chloride while performing bathroom fixture resurfacing projects. Oregon OSHA urges employers to train their employees to take precautions and avoid exposure. Methylene chloride is very dangerous. It can severely burn the skin and eyes; damage the liver, kidney, and brain; and may cause death. Symptoms include dizziness, headache, disorientation, and loss of consciousness.

In the first incident, the homeowner discovered the victim hunched over the bathtub after vapors from a methylene chloride stripper overcame the worker. He was not wearing a respirator and was working in a small bathroom with only a ceiling fan on and a closed door. He never regained consciousness and died in the hospital.

In the second incident, a worker finished applying methylene chloride to a sink in a bathroom with no fan and a window opened just a few inches. The homeowner called for help after the worker was acting incoherent. He was not wearing a respirator.

The cases described above are just two of many similar cases. The national Fatality Assessment and Control Evaluation (FACE) Program identified an average of one death per year related to bathroom fixture refinishing with stripping agents containing methylene chloride.

What is methylene chloride? Methylene chloride, a chlorinated solvent, is a volatile, colorless liquid with a sweet odor. It is often referred to as dichloromethane. Methylene chloride has many industrial uses, such as paint stripping, metal cleaning, and degreasing.

How are workers exposed to methylene chloride? Workers are exposed to methylene chloride by breathing it and by absorbing it through the skin. Methylene chloride has an odor but you may not be aware of it. Repeated exposure can cause desensitization and a worker may be overexposed – higher than OSHA’s permissible exposure limits (PELs) – even if they can no longer smell it.

Why is methylene chloride a hazard for bathroom refinishers? When workers use methylene chloride to strip coatings from bathtubs and sinks, they often spray or pour a stripping product into the basin of the fixture and then brush the product onto the surface. Many stripping products, including over-the-counter products, contain high percentages of methylene chloride. Use of these chemicals in bathrooms is extremely dangerous, particularly because bathrooms are often small, with little or no ventilation. Since methylene chloride is a volatile organic compound that will evaporate faster when sprayed, brushed, or poured, the chemical vapors can quickly build up in small spaces. Moreover, because methylene chloride evaporates quickly, vapors can collect in the basin bottom, the worker’s breathing zone when working. This situation creates dangerously high concentrations of methylene chloride and even replaces the breathable air. Exposure to as little as six ounces of methylene chloride-based material is enough to cause death.



Photo: Brian Hauck

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Methylene Chloride - bathroom fixture refinishing - continued

What creates a dangerous situation?

Common elements that lead to dangerous working conditions include:

- Using methylene chloride-based stripping agents to remove bathroom coatings.
- Working alone.
- Working in small, poorly ventilated bathrooms.
- Wearing no or inadequate respiratory protective equipment.
- Wearing the wrong type of or no skin protection.
- Working without being trained on the hazards of exposure to methylene chloride.



Photo: Brian Hauck

How to protect workers

- Avoid or minimize spraying methylene chloride.
- Ensure that the room is adequately ventilated during the entire refinishing process if methylene chloride is used. Provide local exhaust ventilation (LEV) and fresh air to exhaust vapors released from the stripping agents. Specifically, use LEV units with a fan, flexible ductwork, and a hood near the work surface that exhausts hazardous vapors to the outdoors.
- Follow all applicable OSHA standards, including the Methylene Chloride standard ([1910.1052](#)), during stripping.
- Use a knowledgeable occupational safety and health specialist to assist in the design and installation of LEV to effectively control vapors to below applicable PELs.
- Follow good housekeeping measures, including spill and leak control, and appropriate personal hygiene practices, such as making skin-washing areas available to workers.
- Use long-handled tools (e.g., scrapers, brushes) to avoid leaning into the work surface.
- Leave the room immediately after applying the methylene chloride-based stripping agent to limit exposure to methylene chloride vapors.
- Use full-face supplied air respirators, protective gloves, and other appropriate personal protective equipment (PPE) that is resistant to methylene chloride during the entire refinishing process. Air purifying respirators with organic vapor cartridges are ineffective for protection against methylene chloride.
- Train workers on the hazards of methylene chloride and how to prevent exposure.



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