



# Bathtub Refinisher Dies from Exposure to Methylene Chloride

## Background

Since 2000, at least 13 bathtub refinishers have died nationwide due to overexposure to methylene chloride-based strippers. One of these 13 fatalities occurred in Massachusetts. All of these deaths occurred during work in residential bathrooms with inadequate ventilation. In addition, personal respiratory protection was insufficient: respirators were either not used or were the wrong type to protect against methylene chloride (MC) vapors.



## What happened in Massachusetts?

In 2004, a 43-year-old contractor was hired to refinish a bathtub. While stripping the bathtub with an MC-based stripper, he was found unconscious in the bathroom slumped over the bathtub. The bathroom did not have windows or exhaust ventilation. The victim was wearing a disposable respirator while stripping the bathtub.

## What can be done?

To prevent similar incidents and risk of severe injury and death:

### **Do not use MC-based strippers:**

- MC-based strippers most likely cannot be used safely in small and medium enclosed bathrooms.
- Use alternative stripping methods, such as sanding and using non-MC-based strippers.



**WARNING:** Alternate methods may have their own hazards of which to be aware.

## Did you know? Methylene chloride is:

- colorless, very volatile and toxic.
- absorbed primarily through inhalation, but also the skin.
- regulated as a cancer-causing chemical.
- a central nervous system depressant causing narcosis, heart failure and sudden death.
- metabolized into carbon monoxide (CO) that can lead to CO poisoning and death.
- heavier than air. Without ventilation, highest concentrations will be inside the tub.

## If MC-based strippers must be used:

- Always adhere the manufacturer's instructions.
- Follow the steps on the back of this alert.

See back



MA FACE (Massachusetts Fatality Assessment and Control Evaluation) seeks to prevent work fatalities by identifying and investigating these incidents and developing prevention strategies for those who can intervene in the workplace.

MA FACE is supported by cooperative agreement # 2U60OH008490-06 from CDC-NIOSH. This document may be copied freely and found online at [www.mass.gov/dph/face](http://www.mass.gov/dph/face). If you have comments or questions, call the Massachusetts FACE project at 1-800-338-5223.

### Employers, Workers, and Consumers:

If MC-based strippers must be used, always follow the manufacturer's instructions and follow the steps below to **help protect employees and yourself from being fatally injured by MC vapors:**

- Establish local exhaust ventilation and fresh makeup air. Local Exhaust: Attach ductwork to a fan. Place one end of the ductwork in the tub. Place fan at window or door to exhaust MC vapors to the outside of the building. Fresh air: Place another fan in a window or doorway.



**WARNING:** Using a standard bathroom ceiling exhaust fan alone will not provide enough ventilation to protect workers.

- Wear a full-face, supplied-air respirator when applying and removing MC-based strippers.



**WARNING:** Dust masks and cartridge respirators will not protect workers.

- Leave the room after applying MC strippers. Keep fresh air and local exhaust fans running and windows and doors open.

- Use butyl rubber or polyvinyl alcohol (PVA) gloves.



**WARNING:** Latex or nitrile gloves will not protect workers.

- Implement safe work practices such as: add a tool handle extender to minimize leaning into the tub.

**WARNING:** Following the above steps may not be enough to protect you from methylene chloride's long-term health effects.

### Massachusetts Resources

#### MA Department of Labor Standards (DLS)

The DLS offers free consultation services to help employers recognize and control potential hazards at their worksites, and assist in training employees.

Go to: [www.mass.gov/dols/consult](http://www.mass.gov/dols/consult)

#### Results of the Massachusetts methylene chloride end-users survey.

A survey of Massachusetts companies reporting use of methylene chloride between 1995 and 1999.

Go to: [www.ncbi.nlm.nih.gov/pubmed/12519687](http://www.ncbi.nlm.nih.gov/pubmed/12519687)  
Roelofs CR, Ellenbecker MJ. Journal of *Applied Occupational and Environmental Hygiene*. Volume 18(2), pages 132-137. 2003.

#### MA Department of Public Health

The Fatality Assessment and Control Evaluation (FACE) project investigates work-related fatalities and develops prevention recommendations. Full reports of incidents are available for free online.

Go to: [www.mass.gov/dph/face](http://www.mass.gov/dph/face)  
and click on "Educational Materials" and then "Fatality Case Reports"

### National Resources

#### Fatal Exposure to Methylene Chloride Among Bathtub Refinishers—United States, 2000 - 2011

Centers for Disease Control & Prevention. *Morbidity and Mortality Weekly Report*. February 24, 2012. Volume 61(07); pages 119-122.

Go to: [www.cdc.gov/mmwr/pdf/wk/mm6107.pdf](http://www.cdc.gov/mmwr/pdf/wk/mm6107.pdf)

#### Occupational Safety & Health Administration (OSHA): Methylene Chloride

Detailed web content on the OSHA Standard and employer requirements.

Go to: [www.osha.gov//SLTC/methylenechloride/](http://www.osha.gov//SLTC/methylenechloride/)

User-friendly booklet of the OSHA Standard and employer requirements.

Go to: [www.osha.gov/Publications/osh3144.pdf](http://www.osha.gov/Publications/osh3144.pdf)

#### National Institute for Safety & Health (NIOSH): Methylene Chloride Resources

Variety of resources and links on methylene chloride, including the NIOSH Pocket Guide to Chemical Hazards

Go to: [www.cdc.gov/niosh/topics/methylenechloride/](http://www.cdc.gov/niosh/topics/methylenechloride/)

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