

## TSCA Reform Needed Now

# Congress Must Expand Protections against Widely Used Harmful Chemicals: **Methylene Chloride**



Methylene chloride is a common solvent and degreaser widely used in industry and consumer products, such as paint strippers and aerosols. It has caused acute poisonings resulting in death and is considered a workplace carcinogen. Despite serious health hazards and the availability of cost-effective safer alternatives, high concentrations of methylene chloride are still used in workplaces and in consumer products. Visit [www.takeouttoxics.org](http://www.takeouttoxics.org).

When the Toxic Substances Control Act (TSCA) was enacted in 1976, it was intended to ensure that chemicals are safe throughout their lifecycle, from manufacture to use and disposal. But weaknesses in the law have left the Environmental Protection Agency (EPA) unable to act on known health dangers. Other laws, such as those setting air, water, and workplace safety standards, do not adequately regulate exposure to most chemicals, nor do they address the hazards a chemical may pose over its entire lifecycle. New legislation is needed to rapidly reduce exposure to toxic chemicals, such as methylene chloride\*, used in many industrial and consumer applications—including as an extraction solvent for caffeine, spices, and hops, and in products such as wood floor cleaners, water repellents, and spray shoe polish. NRDC urges Congress to update TSCA to protect people and the environment from toxic chemicals.

For more information, please contact:

**Sarah Janssen, M.D.,  
Ph.D., MPH**  
sjanssen@nrdc.org  
(415) 875-6100

### Despite Widespread Recognition of Harm, Methylene Chloride is Not Adequately Regulated

Numerous poisonings and deaths have been reported over several decades among workers and consumers using furniture strippers or other products containing methylene chloride in unventilated areas. Easily inhaled, methylene chloride converts to carbon monoxide once inside the body—making it especially dangerous for people with heart or lung disease, and pregnant women. Furthermore, several federal, state, and international agencies have identified methylene chloride as a cancer-causing substance. Unlike the poisonings, cancer in people caused by methylene chloride can take years to develop and is more difficult to document. Despite decades of knowledge about these toxic health effects, methylene chloride remains poorly regulated. Though some federal and state standards exist, none of these standards are strong enough to protect worker or public health and none address the chemical's entire lifecycle. Worker and public health should not be subject to weak standards and piecemeal regulations, we need strong TSCA reform to reduce exposures to this toxic chemical.

### Methylene Chloride is in a Long List of Products and Used in Many Industries

Methylene chloride is used in many industrial and consumer applications; it does not occur naturally in the environment. The U.S. Department of Health and Human Services (HHS) Household Products Database lists 27 consumer products containing methylene chloride, most with concentrations greater than 50 percent. These include automotive cleaners, adhesive removers, paint strippers and graffiti removers. Fortunately, there are readily available, safer alternatives. Water-based adhesives and cleaners can be substituted for products that contain methylene chloride. And soy-based strippers, mechanical methods, and benzyl alcohol are safer substitutes for methylene chloride-based paint strippers. Unfortunately, despite the well-known health effects caused by methylene chloride and the ready availability of cost effective, safer alternatives, this toxic substance is still found in everyday products and is widely used in industry as a solvent, exposing Americans to unnecessary health risks.



[www.nrdc.org](http://www.nrdc.org)

July 2010

© Natural Resources  
Defense Council

\* Also called dichloromethane. CAS Registry Number 75-09-2.



When inhaled or absorbed through the skin, methylene chloride can reach the developing fetus through the placenta and it also can enter breast milk.

#### SOURCES

Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological Profiles, Methylene Chloride, September 2000.

International Agency for Research on Cancer (IARC) monograph on dichloromethane, vol 71. 1999.

The Institute for Research and Technical Assistance (IRTA), Glendale, CA. Methylene Chloride Consumer Product Paint Strippers: Low-VOC, Low Toxicity Alternatives. 2006.

Mahmud M, Kales SN. Methylene Chloride Poisoning in a Cabinet Worker. Environmental Health Perspectives, Vol. 107, No. 9 (Sep., 1999), pp. 769-772.

Occupational Safety and Health Administration (OSHA). 1997. Occupational Exposure to Methylene Chloride. Final Rule. Federal Register 68:1494-1619.

State of Maine, Department of Environmental Protection (DEP). Chemicals of High Concern List. Published June, 2009. <http://www.maine.gov/dep/oc/safechem/highconcern/index.htm>

Substances Identified by California As Toxic Air Contaminants. <http://www.arb.ca.gov/toxics/id/taclist.htm>

U.S. Department of Health and Human Services (HHS) Household Products Database. <http://householdproducts.nlm.nih.gov/cgi-bin/household/brands?tbl=chem&id=244>.

U.S. Department of Health and Human Services (HHS), Public Health Service, National Toxicology Program, 2005. Report on Carcinogens, Eleventh Edition.

U.S. Environmental Protection Agency (US EPA). 1995. Integrated Risk Information System (IRIS). Dichloromethane.

## Methylene Chloride

### Products Where Methylene Chloride Is Found

Methylene Chloride is found in consumer products such as spray shoe polish, water repellents, spot removers, wood floor and panel cleaners, adhesive removers, lubricants, wood stains, varnishes and finishes, paint strippers and graffiti removal products, rust removers, glass frosting/artificial snow, and some automotive parts cleaning products.

### Industries Where Methylene Chloride Is Found

In the work place, it is most often used as an aerosol propellant, a degreaser in manufacturing, a paint stripper, and a polyurethane foam blowing agent. It is also an extraction solvent for spices, caffeine, and hops. It is also used in nail salons as an artificial nail solvent.

### Exposure and Health Risks

Exposure to methylene chloride from consumer products occurs when a person breathes the vapors given off by the product or from direct contact of the skin with liquid material. The highest exposures usually occur in workplaces where the chemical is used in large volumes over long periods of time. Methylene chloride is also frequently found as a contaminant at hazardous waste sites, so people living near these areas may be more highly exposed. Once inhaled or absorbed into the body, methylene chloride is converted to carbon monoxide. Since carbon monoxide interferes with oxygen delivery, methylene chloride can make angina (chest pain) and other heart symptoms worse in people with heart disease. People with lung conditions, smokers, and people who are overweight or pregnant also may be more sensitive to methylene chloride. When inhaled or absorbed through the skin, methylene chloride can reach the developing fetus through the placenta and it also can enter breast milk. Methylene chloride affects the nervous system (brain) and can cause headaches, dizziness, nausea, clumsiness, drowsiness, and other effects like those of being drunk. Effects on the nervous system can be long-lasting and possibly permanent if exposures are high and if they occur frequently over months or years. Methylene chloride causes cancer in laboratory animals and potentially can cause cancer in humans. Methylene chloride causes lung and liver tumors, and mammary (breast) tumors in animal studies.

### How Methylene Chloride is Designated and Regulated Now



The International Agency for Research on Cancer (IARC) has designated methylene chloride a possible human carcinogen.

Methylene chloride has been banned from paint strippers (paint or graffiti removers) in the EU.



The U.S. EPA has classified methylene chloride as a probable human carcinogen but has not updated its assessment of the toxicity of this chemical in 15 years. Congress has identified methylene chloride as a hazardous air pollutant under the Clean Air Act and it is regulated as such by the EPA.

National Toxicology Program has determined methylene chloride is reasonably anticipated to be a human carcinogen.

The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) have designated methylene chloride as an occupational carcinogen. In 1997, OSHA set an insufficient workplace exposure limit of 25 parts per million of air, allowing for 3.6 excess cancer cases per 1,000 workers exposed over their working lifetime.

The U.S. Food and Drug Administration (FDA) set limits for use of methylene chloride in spices, hops extract, and decaffeinated coffee but still allows its use as an indirect food additive (as a component of adhesives or polycarbonate resins used in food packaging and transport and in inks used for marking fruits and vegetables). In 1989, the FDA banned use of methylene chloride in hair sprays.



The California Air Resources Board designates methylene chloride as a toxic air contaminant with no safe level of exposure and has prohibited its use in 13 product categories, including general purpose degreasers, brake cleaners, all spray paints, all aerosol adhesives, adhesive removers, antiperspirants and deodorants.



Maine has listed methylene chloride as a "chemical of high concern" for being a carcinogen under its law on Toxic Chemicals in Children's Products.



NRDC would like to acknowledge Dr. Caroline Baier-Anderson, formerly of the Environmental Defense Fund, and Julia Quint, formerly of the California Department of Public Health, for reviewing this factsheet.

© Natural Resources Defense Council July 2010

Printed on recycled paper