
Product Safety Assessment

DOW™ Methyl Isobutyl Carbinol

Select a Topic:

- [Names](#)
- [Product Overview](#)
- [Manufacture of Product](#)
- [Product Description](#)
- [Product Uses](#)
- [Exposure Potential](#)
- [Health Information](#)
- [Environmental Information](#)
- [Physical Hazard Information](#)
- [Regulatory Information](#)
- [Additional Information](#)
- [References](#)

Names

- CAS No. 108-11-2
- Methyl isobutyl carbinol
- DOW™ methyl isobutyl carbinol
- Isobutyl methyl carbinol
- 4-Methyl-2-amyl alcohol
- EC No. 203-551-7
- MIBC
- 4-Methyl pentan-2-ol
- 1,3-Dimethyl butanol
- 4-Methyl-2-pentanol

[Back to top](#)

Product Overview

- DOW™ methyl isobutyl carbinol is a colorless, stable liquid with a mild alcohol odor.¹ For further details, see [Product Description](#).
- The major application for DOW methyl isobutyl carbinol is the manufacture of lube-oil additives, followed by its use as a flotation frother in treating metal ores.² For further details, see [Product Uses](#).
- Methyl isobutyl carbinol has minimal acute toxicity by oral and dermal routes of exposure. Brief exposure to MIBC may cause moderate eye irritation and corneal injury and may cause slight skin irritation. Prolonged inhalation exposure may cause irritation to the upper respiratory tract (nose and throat) and lungs. Anesthetic effects, typical of organic solvents, can be expected at high vapor concentrations.³ For further details, see [Health Information](#).
- Human exposure to DOW methyl isobutyl carbinol is limited based on its use patterns. With one exception, the material is used in closed systems and only catastrophic failure would result in appreciable exposure.⁴ For further details, see [Exposure Potential](#).
- DOW methyl isobutyl carbinol is thermally stable at recommended storage and use temperatures and pressures.⁵ For further details, see [Physical Hazard Information](#).
- Methyl isobutyl carbinol is readily biodegradable, unlikely to accumulate in the food chain, and is considered practically non-toxic to fish and other aquatic organisms on an acute basis. For further details, see [Environmental Information](#).

[Back to top](#)

Manufacture of Product

- **Capacity** – Dow produces methyl isobutyl carbinol at facilities in Institute, West Virginia (USA).^{6,7}

^{®™} Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

- **Process** – DOW™ methyl isobutyl carbinol is recovered as a co-product during methyl isobutyl ketone (MIBK) manufacture or produced by hydrogenation of MIBK.⁸

[Back to top](#)

Product Description¹

DOW™ methyl isobutyl carbinol is a flammable, colorless stable liquid with a mild alcohol odor. It is slightly soluble in water and miscible with most organic solvents.

[Back to top](#)

Product Uses^{9,10}

The major application of methyl isobutyl carbinol is in the manufacture of lube-oil additives, followed by its use as a flotation frother in treating copper ore and ores of other metals. Use as a solvent in surface coatings comprises a minor portion of MIBC consumption.

[Back to top](#)

Exposure Potential^{4,5}

DOW™ methyl isobutyl carbinol is used in the production of industrial products. Based on the uses for this material, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a methyl isobutyl carbinol manufacturing facility or in the various industrial or manufacturing facilities that use this material. In most applications, this product is produced, distributed, stored, and consumed in closed systems. Those working with methyl isobutyl carbinol in manufacturing, mining, coating or other operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit unnecessary exposure. See [Health Information](#).
- **Consumer exposure to products containing methyl isobutyl carbinol** – Dow does not sell methyl isobutyl carbinol for direct consumer use, and it is unlikely to be present in any product a consumer would handle. See [Health Information](#).
- **Environmental releases** – Methyl isobutyl carbinol is moderately volatile and slightly soluble in water. Once introduced to water it will have a tendency to remain in water. Because methyl isobutyl carbinol is readily biodegradable, it will be removed by sewage treatment plants. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Eliminate all sources of ignition immediately. See [Environmental, Health, and Physical Hazard Information](#).
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the material should be captured, collected, and reprocessed or disposed of according to applicable governmental requirements. Positive-pressure, self-contained breathing apparatus (SCBA) with an approved full-face mask is recommended for emergency work. Eliminate all sources of ignition immediately. Use only explosion-proof equipment. Ground and bond all containers and handling equipment. See [Environmental, Health, and Physical Hazard Information](#).
- **In case of fire** – Deny any unnecessary entry into the area. Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam to fight the fire. Alcohol-resistant foam is preferred. Use of a direct water stream may spread the fire. The public should be warned of any downwind vapor explosion hazards. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Keep vapors out of sewers. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) with an approved full-face mask and protective firefighting clothing. See [Physical Hazard Information](#).

^{®™} Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

For more information, see the relevant [Safety Data Sheet](#).

[Back to top](#)

Health Information^{5,11}

Eye and Skin Contact – May cause moderate eye irritation and moderate corneal injury. Exposure to methyl isobutyl carbinol vapor may cause eye irritation, mild discomfort, and redness. Prolonged skin contact may cause slight irritation and local redness or drying and flaking of the skin, but is unlikely to result in absorption of harmful amounts.

Inhalation – Prolonged, excessive exposure to methyl isobutyl carbinol may cause adverse effects. Excessive exposure may cause irritation to the upper respiratory tract and lungs. Symptoms of excessive vapor exposure may be anesthetic or narcotic effects, dizziness, and drowsiness.

Ingestion – Methyl isobutyl carbinol has low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Excessive exposure – Excessive exposure may cause anesthetic or narcotic effects, dizziness, and drowsiness. Kidney toxicity has been reported in animal studies.

Other – Methyl isobutyl carbinol is unlikely to be mutagenic in humans. Based on the available data from animal studies, this material is not expected to be a human reproductive or developmental toxicant.

For more information, see the relevant [Safety Data Sheet](#).

[Back to top](#)

Environmental Information^{5,12}

DOW™ methyl isobutyl carbinol is moderately volatile and slightly soluble in water. As a result when introduced to water, the chemical will have a tendency to remain in water. It has low potential to bind to soil or sediment.

DOW methyl isobutyl carbinol is unlikely to persist in the environment. The compound is readily biodegradable, which suggests the chemical will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants.

DOW methyl isobutyl carbinol is not likely to accumulate in the food chain (bioconcentration potential is low) and is practically nontoxic to fish and other aquatic organisms on an acute basis.

The Organisation for Economic Co-operation and Development (OECD) Screening Information Data Set (SIDS) Initial Assessment Profile for methyl isobutyl carbinol concluded that the chemical has a low hazard profile and, thus, is currently of low priority for further work. The profile document may be accessed at <http://www.chem.unep.ch/irptc/sids/OECD/SIDS/108112.pdf>.

For more information, see the relevant [Safety Data Sheet](#).

[Back to top](#)

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

Physical Hazard Information⁵

DOW™ methyl isobutyl carbinol is thermally stable at recommended temperatures and pressures. Hazardous polymerization will not occur, however, exposure to elevated temperatures can cause the product to decompose. Decomposition of the product depends upon temperature, air supply, and the presence of other materials. Avoid contact with acid chlorides, acids, and oxidizers.

For more information, see the relevant [Safety Data Sheet](#).

[Back to top](#)

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of DOW™ methyl isobutyl carbinol. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant [Safety Data Sheet](#), [Technical Data Sheet](#), or [Contact Us](#)..

[Back to top](#)

Additional Information

- Safety Data Sheet (<http://www.dow.com/webapps/msds/msdssearch.aspx>)
- Contact Us (<http://www.dow.com/oxysolvents/contact/index.htm>)
- *Storage and Handling of Higher Aliphatic Alcohols*, The Dow Chemical Company, Solvents and Coatings Materials Report Number SH143, November 1990
- *Methyl Isobutyl Carbinol Technical Data Sheet*, The Dow Chemical Company, Form No. 327-00049-0405
(http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_0119/0901b803801195c7.pdf?filepath=oxysolvents/pdfs/noreg/327-00049.pdf&fromPage=GetDoc)
- Camara Greiner, Elvira O. and Yokose, Kazuteru, *Product Review: Methyl Isobutyl Ketone (MIBK) and Methyl Isobutyl Carbinol (MIBC)*, *Chemical Economics Handbook*, SRI International, August 2002 (<http://www.sriconsulting.com/CEH/Public/Reports/675.6000>)
- *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 21 – 4-Methylpentan-2-ol CAS No. 108-11-2*, Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP): Washington, D.C., October 21, 2005 (<http://www.inchem.org/documents/sids/sids/108112.pdf>)
- Linak, Eric, *Global Solvent Report: The Green Impact*, SRI Consulting, 2006

For more business information about DOW™ methyl isobutyl carbinol, visit the Dow Oxygenated Solvents website at www.dow.com/oxysolvents/prod/acids.htm#alcohols.

[Back to top](#)

[®]™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

References

- ¹ *Methyl Isobutyl Carbinol Technical Data Sheet*, The Dow Chemical Company, Form No. 327-00049-0405
- ² Camara Greiner, Elvira O. and Yokose, Kazuteru, "Product Review: Methyl Isobutyl Ketone (MIBK) and Methyl Isobutyl Carbinol (MIBC)," *Chemical Economics Handbook*, SRI International, August 2002, page 4.
- ³ *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP), Washington, D.C., October 21, 2005, page 14.
- ⁴ *SIDS Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, UNEP Publications, Washington, D. C., October 21, 2005, page 9.
- ⁵ *Methyl Isobutyl Carbinol Safety Data Sheet*, The Dow Chemical Company
- ⁶ Camara Greiner, Elvira O. and Yokose, Kazuteru, "Product Review: Methyl Isobutyl Ketone (MIBK) and Methyl Isobutyl Carbinol (MIBC)," *Chemical Economics Handbook*, SRI International, August 2002, page 8.
- ⁷ Camara Greiner, Elvira O. and Yokose, Kazuteru, "Product Review: Methyl Isobutyl Ketone (MIBK) and Methyl Isobutyl Carbinol (MIBC)," *Chemical Economics Handbook*, SRI International, August 2002, page 6.
- ⁸ *SIDS Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, UNEP Publications, Washington, D. C., October 21, 2005, page 8.
- ⁹ Camara Greiner, Elvira O. and Yokose, Kazuteru, "Product Review: Methyl Isobutyl Ketone (MIBK) and Methyl Isobutyl Carbinol (MIBC)," *Chemical Economics Handbook*, SRI International, August 2002, page 11.
- ¹⁰ *SIDS Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, UNEP Publications, Washington, D. C., October 21, 2005, page 6.
- ¹¹ *SIDS Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, UNEP Publications, Washington, D. C., October 21, 2005, pages 5–6.
- ¹² *SIDS Initial Assessment Report for SIAM 21: 4-Methylpentan-2-ol CAS No. 108-11-2*, UNEP Publications, Washington, D. C., October 21, 2005, pages 6 and 9.

[Back to top](#)

NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Dow be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Dow makes no representation or warranty, express or implied, that the use thereof will not infringe any patent.

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

Dow makes no commitment to update or correct any information that appears on the Internet or on its World-Wide Web server. The information contained in this document is supplemental to the Internet Disclaimer, <http://www.dow.com/homepage/disclosure.html>.

[Back to top](#)

Form No. 233-00593-MM-1214X



®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow
