Product Safety Assessment

*DOW™ Diisobutyl Carbinol*


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Names
- CAS No. 108-82-7
- DOW™ diisobutyl carbinol
- Diisobutyl carbinol
- DIBC
- EC No. 203-619-6
- Dimethyl heptanol
- 2,6-Dimethyl-4-heptanol

Product Overview
- DOW™ diisobutyl carbinol is a transparent, colorless liquid with a sweet odor. It has limited solubility in water but is miscible with most organic solvents.\(^1\) For further details, see Product Description.
- DOW diisobutyl carbinol is primarily used as a solvent in a variety of processes.\(^1\) For further details, see Product Uses.
- Those working with diisobutyl carbinol in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. For further details, see Exposure Potential.
- No short-term harmful health effects are expected from exposure to diisobutyl carbinol vapor at ambient temperature. Brief exposure to DIBC may cause slight eye irritation and corneal injury and may cause slight skin irritation. Prolonged inhalation exposure is not likely to cause irritation to the upper respiratory tract. If swallowed, this material is considered slightly toxic.\(^2\) For further details, see Health Information.
- Dow diisobutyl carbinol is readily biodegradable, unlikely to accumulate in the food chain, and slightly toxic to fish and other aquatic organisms on an acute basis. For further details, see Environmental Information.
- DOW diisobutyl carbinol is thermally stable at recommended storage and use temperatures.\(^2\) For further details, see Physical Hazard Information.

\(^1\)Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Manufacture of Product
- **Capacity** – Dow produces diisobutyl carbinol at facilities in Institute, West Virginia (USA).
- **Process** – DOW™ diisobutyl carbinol is recovered as a co-product during methyl isobutyl ketone (MIBK) manufacture.

Product Description
DOW™ diisobutyl carbinol is a transparent, colorless liquid with a sweet odor. It has limited solubility in water but is miscible with most organic solvents. It has a high boiling point and is a slow-evaporating solvent.

Product Uses
DOW™ diisobutyl carbinol is primarily used in the process to manufacture hydrogen peroxide. It is suitable for use in the following applications:
- **Solvent** – for hydrogen peroxide manufacture, lacquers, shellac, printing inks, vinyl-chloride-acetate resins, urea-melamine resins, and alkyd resins
- **Extraction or refining solvent** – in a variety of processes
- **Flotation agent**
- **Chemical intermediate** – for dyestuffs, perfume manufacture, fabric softeners, pesticides, pharmaceuticals, lubricants, oil additives, and other products and processes
- **Rubber additive**, plasticizer, and surface-active agent
- **Defoamer** – in adhesives
- **Dispersing agent** – in coatings
- **Coupling solvent** – for synthetic resins

Exposure Potential
DOW™ diisobutyl carbinol is used as a solvent in a variety of processes. Based on the uses for this material, the public could be exposed through:
- **Workplace exposure** – Exposure can occur either in a diisobutyl carbinol manufacturing facility or in the various industrial or manufacturing facilities that use this material. Those working with diisobutyl carbinol in manufacturing 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 diisobutyl carbinol** – Dow does not sell diisobutyl carbinol for direct consumer use, and it is unlikely to be present in any product that a consumer would handle. See Health Information.
- **Environmental releases** – Diisobutyl carbinol has moderate volatility, and limited solubility in water. Once the substance is dissolved in water, it will have a tendency to stay in water. Because diisobutyl carbinol is readily biodegradable, it will be treated 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. Respiratory protection is necessary for cleaning up spills and leaks. Eliminate all sources of ignition immediately. For small spills, diisobutyl carbinol should be flushed with large amounts of water. Avoid discharge to natural waters. 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 all applicable governmental requirements. 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 and consider the use of unmanned hose holders. Extinguish fires with water spray or alcohol-resistant or all-purpose foam. Use carbon-dioxide or dry-chemical extinguishers for small fires. This material may produce a floating fire hazard in extreme fire conditions. Use of a direct water stream may spread the fire. Firefighters should wear positive pressure, self-contained breathing apparatus (SCBA) with an approved full-face mask with protective firefighting clothing. Follow emergency procedures carefully. See Health and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

**Health Information**

**Eye and Skin Contact** – May cause slight eye irritation and slight corneal injury. Exposure to diisobutyl carbinol vapor may cause eye irritation, mild discomfort, and redness. Prolonged skin contact may cause slight irritation and local redness, but is unlikely to result in absorption of harmful amounts.

**Inhalation** – Prolonged, excessive exposure to diisobutyl carbinol is not likely to cause adverse effects and is unlikely to cause respiratory tract irritation.

**Ingestion** – Diisobutyl 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 and lung injury.

**Excessive exposure** – As has been reported in animal studies, excessive exposure may cause effects to the liver.

**Other** – Diisobutyl 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.

**Environmental Information**

Diisobutyl carbinol has low volatility and limited solubility in water. Once the substance is dissolved in water, it will have a tendency to stay in water. It has a slight potential to bind to soil or sediment.

Diisobutyl carbinol is unlikely to persist in the environment. The substance is readily biodegradable, which suggests the chemical will be removed from water and soil environments, including biological wastewater treatment plants.

Diisobutyl carbinol is not likely to accumulate in the food chain (bioconcentration potential is low) and is slightly toxic to fish and other aquatic organisms on an acute basis.

For more information, see the relevant Safety Data Sheet.
Physical Hazard Information

DOW™ diisobutyl 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 products depend upon temperature, air supply and the presence of other materials. Avoid contact with strong oxidizing agents and strong inorganic acids.

For more information, see the relevant Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of DOW™ diisobutyl 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.

Additional Information

- Safety Data Sheet (http://www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (http://www.dow.com/oxysolvents/contact/index.htm)
- Diisobutyl Carbinol Technical Data Information, The Dow Chemical Company, Form No. 327-00028-1001, September 2002 (http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_012d/0901b8038012d980.pdf?&fromPage=GetDoc)
- Diisobutyl Carbinol Safety Data Sheet, The Dow Chemical Company, 915/1001, 2013

For more business information about DOW™ diisobutyl carbinol, visit the Dow Oxygenated Solvents website at: http://www.dow.com/oxysolvents/app/arch_sol.htm.

References

1. Diisobutyl Carbinol Technical Data Sheet, The Dow Chemical Company, Form No. 327-00028-1001
2. Diisobutyl Carbinol Safety Data Sheet for the US, Union Carbide Corporation, A Subsidiary of The Dow Chemical Company, 915/1001
3. 4-Heptanol, 2,6-dimethyl- (Diisobutyl Carbinol; CAS RN 108-82-7) High Production Volume (HPV) Chemical Challenge Test Plan and Data Review, Toxicology/Regulatory Services, Inc., December 19, 2003, page 5.
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