Product Safety Assessment

*DOW™ Primary Amyl Alcohol*

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**Names**
- CAS No. 71-41-0
- CAS No. 137-32-6
- Primary amyl alcohol
- DOW™ primary amyl alcohol
- Amyl alcohol mixed isomers
- Pentanol mixture
- EC No. 200-752-1
- EC No. 205-289-9
- Pentyl alcohol mixed
- Primary amyl alcohol isomers
- Butyl carbinol

**Product Overview**
- DOW™ primary amyl alcohol is a colorless liquid with a mild odor. It is partly soluble in water and miscible with common organic solvents. It is not considered a hazardous air pollutant (HAP) solvent by the United States Environmental Protection Agency.\(^1,2\) For further details, see **Product Description**.
- DOW primary amyl alcohol is mainly used as a solvent for coatings. Other applications include use as a chemical intermediate for the production of amyl acetate and amyl xanthate, a lube oil additive, and an extraction solvent in the pharmaceutical and cosmetics industries.\(^1,3\) For further details, see **Product Uses**.
- DOW primary amyl alcohol is not sold for direct consumer use, but exposure can occur either in a manufacturing facility or in the various industrial or manufacturing facilities that use this material. Workplace exposure is minimized through engineering controls and personal protective equipment.\(^2\) For further details, see **Exposure Potential**.
- Eye contact with DOW primary amyl alcohol causes moderate irritation but corneal injury is unlikely. Brief skin contact may cause moderate irritation with local redness. Prolonged or widespread skin contact may result in more severe irritation, pain, and discomfort. Prolonged exposure to the skin with primary amyl alcohol is not anticipated to be absorbed in harmful amounts. This material may be harmful if inhaled in high concentrations. Mist may cause irritation of upper respiratory tract (nose and throat) and lungs and may cause central nervous system effects.\(^2\) See **Health Information** or **Physical Hazard Information**.
- DOW primary amyl alcohol liquid and vapors are combustible. Avoid contact with strong oxidizers and strong inorganic acids.\(^2\) For further details, see **Physical Hazard Information**.
- Primary amyl alcohol is readily biodegradable, unlikely to accumulate in the food chain, and expected to be slightly toxic to fish and aquatic organisms.

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Manufacture of Product

- **Capacity** – DOW™ primary amyl alcohol is manufactured in Texas City, Texas (USA).
- **Process** – DOW primary amyl alcohol is made by the reduction of 1-valeraldehyde and 2-methyl butyraldehyde with hydrogen. The reaction is shown below.

![Chemical Reaction Diagram]

Product Description

DOW™ primary amyl alcohol is a colorless liquid with a mild odor. It is an isomeric mixture of 65% pentanol (CAS No. 71-41-0) and 35% 2-methyl butanol (CAS No. 137-32-6). It is partly soluble in water and is miscible with common organic solvents. Due to its lower volatility than conventional solvents, fewer fugitive emissions are likely during its use. It is not considered a hazardous air pollutant (HAP) solvent by the U.S. Environmental Protection Agency.

Product Uses

DOW™ primary amyl alcohol is an industrial chemical used in the following applications:

- Agricultural chemicals
- Coatings solvent for urea-formaldehyde resins, shellacs, and gums
- Chemical intermediate for amyl acetate (a solvent) and amyl xanthate (used for mining)
- Lube oil additive
- Electronics
- Flavor and fragrance chemical
- Extraction solvent for processing pharmaceuticals and cosmetics

Exposure Potential

Primary amyl alcohol is used in the production of industrial products, as well as cosmetics and pharmaceuticals. Based on the uses for this product, the public could be exposed through:

- **Workplace exposure** – Primary amyl alcohol is manufactured in a closed system using engineering controls that prevent the escape of liquid or vapors and minimize release to the environment. Worker exposure could occur during maintenance, sampling, testing, or other procedures. Facilities that manufacture or use this material 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](#).
Product Safety Assessment: DOW™ Primary Amyl Alcohol

- **Consumer exposure to products containing primary amyl alcohol** – Dow does not sell primary amyl alcohol for direct consumer use. However, it is used as an extraction chemical for cosmetics and pharmaceutical manufacturing. These products are manufactured in compliance with strict guidelines and regulations. Consumer exposure to residual amounts of primary amyl alcohol in these products is unlikely to have adverse health effects. See Health Information.

- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Use appropriate personal protective equipment when cleaning up spills and leaks. Small spills can be flushed with large amounts of water. 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. A positive pressure, self-contained breathing apparatus (SCBA) is recommended in high vapor concentrations. See Environmental, Health, and Physical Hazard Information.

- **In case of fire** – Keep people away. Deny any unnecessary entry into the area. Use water fog or fine spray or apply alcohol-type or all-purpose type foam according to manufacturer’s recommendations. Use carbon-dioxide or dry-chemical extinguishers for small fires. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. This material may produce a floating fire hazard in extreme fire conditions. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

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**Health Information**

**Eye Contact** — Eye contact with primary amyl alcohol causes moderate irritation but corneal injury is unlikely.

**Skin Contact** – Brief skin contact may cause moderate irritation. Prolonged contact may cause a more severe response. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**Inhalation** – Excessive inhalation of this material may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects.

**Ingestion** – Low toxicity is expected if swallowed. Swallowing small amounts of primary amyl alcohol incidentally as a result of normal handling operations is not likely to cause injury. Swallowing may result in gastrointestinal irritation. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

For more information, see the relevant Safety Data Sheet.

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**Environmental Information**

DOW™ primary amyl alcohol is slightly volatile. Because it is partly soluble in water, once introduced, it has a tendency to remain in water. It has minimal tendency to bind to soil or sediment.

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Primary amyl alcohol is unlikely to persist in the environment. Based on its components, primary amyl alcohol can be considered readily biodegradable, which suggests the chemical will be rapidly and completely removed from water and soil environments, including biological waste water treatment plants.

Primary amyl alcohol 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.

The Organisation for Economic Co-operation and Development (OECD) SIDS Initial Assessment Profile for primary amyl alcohol concluded that, based on the known properties and exposure patterns, the chemical is currently of low priority for further work due to its low hazard profile.

For more information, see the relevant Safety Data Sheet.

Physical Hazard Information

Primary amyl alcohol liquid and vapors are combustible. Store this material away from sources of ignition. Sudden release of hot organic chemical vapor or mists from process equipment operating under elevated temperature and pressure – or sudden ingress of air into hot equipment under vacuum – may result in ignition without the presence of an obvious ignition source.

Store this material away from incompatible materials such as strong oxidizing agents and strong inorganic acids. Exposure to elevated temperatures can lead to decomposition.

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™ primary amyl alcohol. 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)
- Primary Amyl Alcohol, Technical Data Sheet, The Dow Chemical Company, Form No. 327-00017-0812, August 2012.
  (http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_08ac/0901b803808aca6c.pdf?filepath=oxysolvents/pdfs/noreg/327-00017.pdf&fromPage=GetDoc)

For more business information about DOW™ primary amyl alcohol, visit Dow’s Oxygenated Solvents web site at: http://www.dow.com/oxysolvents/prod/acids.htm#alcohols.
References

1. **Primary Amyl Alcohol**, Technical Data Sheet, The Dow Chemical Company, Form No. 327-00017-0812
2. **Primary Amyl Alcohol (Mixed Isomers)**, *Safety Data Sheet for the US*, The Dow Chemical Company
5. **Primary Amyl Alcohol, Crude Safety Data Sheet for the US**, The Dow Chemical Company
6. Estimates by The Dow Chemical Company.
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.

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