

Global Product Strategy (GPS) Safety Summary

Diisobutylene

This GPS Safety Summary is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet and the Product Stewardship Bulletin (PSB).

Chemical Identity

Name: 2,4,4-trimethylpentene

Brand names: Pentene, 2,4,4-trimethyl-; Diisobutylene, 2,4,4-Trimethylpenten, Diisobutylen, Diisobutene, Diiosbutylene, Isomeric Compounds; DIB

Chemical name (IUPAC): 2,4,4-trimethylpentene (2,4,4 TMP)

CAS number: 25167-70-8

EC number: 246-690-9

Molecular formula: C₈H₁₆

Uses and Applications

Diisobutylene is an intermediate for a wide range of chemical products, such as:

- Octylphenol resins used as tackifiers in radial tires to increase the stickiness of the surface
- Octylated diphenylamine stabilizers for lubricants and rubbers
- Isononyl derivatives used to produce polymerization initiators and compressor fluids
- Sulfur additives for anti-wear lubricants and HALS stabilizers (eg light stabilizer) for outdoor polyolefin applications
- Co-monomer in the production of elastomers and hydrocarbon resins
- Chain stopper for polycarbonate resins

It is also used as a fuel blending component.

Physical / Chemical Properties

At ambient temperature and pressure, Diisobutylene is a colorless liquid with a very low flash point of -6°C (21°F) and very low water solubility.

Diisobutylene is highly flammable. It is stable under recommended storage conditions and no decomposition may occur if stored and applied as directed. This product reacts vigorously with oxidizing materials. The boiling point and freezing point of Diisobutylene are 102°C (216°F) and less than -50°C (-58°F), respectively.

Diisobutylene has been classified hazardous under the Globally Harmonized System (GHS) for its high flammability.

Health Effects

Diisobutylene has been classified as hazardous under the Globally Harmonized System (GHS) for aspiration toxicity and single exposure narcotic effects.

The table below gives an overview of the health effects assessment results for Diisobutylene.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Low acute toxicity (oral and dermal) Inhalation of high vapor concentrations may cause central nervous system (CNS) depression. May be fatal if swallowed and aspirated into airways
Irritation / corrosion Skin / eye/ respiratory tract	May be moderately irritating to skin and mildly irritating to the eye Inhalation of vapors may cause irritation of the eyes, nose and throat; and at high concentrations, signs of respiratory tract irritation (cough and breathing difficulty)
Sensitization	Low concern for skin sensitization
Toxicity after repeated exposure Oral / inhalation / dermal	Not classified for repeated exposure toxicity. Low concern for repeated exposure toxicity. High exposure may produce liver and kidney effects.
Genotoxicity / Mutagenicity	Not mutagenic/genotoxic
Carcinogenicity	Low concern for cancer
Toxicity for reproduction	Not toxic to reproduction or development.

Environmental Effects

Diisobutylene is very toxic to aquatic life with long lasting effects and has been classified under GHS accordingly.

The table below gives an overview of the environmental assessment results for Diisobutylene.

Effect Assessment	Result
Aquatic Toxicity	Very toxic to aquatic life with long lasting effects

Fate and behaviour	Result
Biodegradation	This material is not rapidly biodegradable.
Bioaccumulation potential	This material is not predicted to have a high potential for bioaccumulation.
PBT / vPvB conclusion	Not considered to be either PBT nor vPvB.

PBT = Persistent, Bio-accumulative and Toxic in the environment.

vPvB = very Persistent and very Bio-accumulative in the environment.

Exposure

Human health

Exposure to Diisobutylene of personnel in manufacturing facilities is considered very low because the process, storage and handling operations are usually enclosed. However, worker exposure can potentially happen during operations like product transfer operations, product sampling, or maintenance/repair activities on product containing systems. The risk of accidental exposure should be controlled and mitigated by selecting and applying the appropriate Risk Management Measures.

Environment

Diisobutylene is manufactured in a closed and automated process. Transfer operations (such as loading and transport) are realized with dedicated equipment and under recommended Safe Use guidance to reduce the risk of release to the environment.

Risk Management Measures

For detailed guidance on the use of Diisobutylene, the Safety Data Sheet and the Product Stewardship Bulletin should be consulted.

Diisobutylene should only be handled by knowledgeable and trained personnel.

Flammability

Because of its flammability potential, Diisobutylene should not be handled or stored near heat, sparks or flame. Metal containers involved in the handling and storage of this material should be grounded and bonded.

Vapor space above stored liquid may be flammable unless blanketed with inert gas.

Human health

When using chemicals make sure that there is adequate ventilation. Always use appropriate chemical-resistant gloves to protect your hands and skin, always wear eye protection such as chemical goggles and always wear flame-retardant clothing. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention.

In the case of transfer or maintenance operations, always clear transfer lines prior to decoupling, and flush/drain to a closed system for recycle prior to opening equipment.

In cases where engineering controls cannot maintain airborne substance concentrations below exposure limits, or in cases with a risk of accidental exposure, additional risk management measures may be necessary for safe use, such as the use of a complete suit protecting against chemicals and supplied air, a self-contained breathing apparatus or respirator.

Environmental

In case of accidental release or spill, do not allow the product to enter sewers, surface or ground water.

Regulatory Information / Classification and Labeling

This substance has been registered under REACH by relevant companies of LyondellBasell in the European Union.

For a detailed overview of the regulatory status of this substance, please refer to the Product Stewardship Bulletin which is available from the LyondellBasell corporate website.

Under GHS (Globally Harmonized System on Classification and Labeling) substances are classified according to their physical, health and environmental hazards. The hazards are communicated via specific labels on the product packaging and the Safety Data Sheet. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

For a detailed overview of the classification and labeling of this substance, please refer to the regional Safety Data Sheet, which can be found on the LyondellBasell corporate website.

Conclusion Statements

- Diisobutylene is used to produce a wide range of chemical products in the rubber and lubricant industry. It is also used as a fuel blending component.
- Diisobutylene has been classified as hazardous. It is highly flammable, can cause CNS (central nervous system) depression, is harmful to the lungs if swallowed and very toxic to the environment.
- Exposure risk to humans and the environment is considered very low as the Diisobutylene manufacturing process, storage and handling operations are enclosed.

Contact Information within Company

For further information on this product in general, please consult the LyondellBasell corporate website (www.lyb.com)..

Date of issue

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Disclaimer

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or
(ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

Users should review the applicable Safety Data Sheet before handling the product.

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