Global Product Strategy (GPS) Safety Summary

Dicyclopentadiene

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, or 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: Dicyclopentadiene, DCPD
Brand names: Equistar DCPD-101
Chemical name (IUPAC): 3a,4,7,7a-tetrahydro-4,7-methano-1H-indene
CAS number: 77-73-6
EC number: 201-052-9
Molecular formula: C10H12

Uses and Applications

Dicyclopentadiene is an important chemical intermediate used in a wide variety of products. It is used in resins for molded parts such as tubs, shower stalls and boat hulls. Dicyclopentadiene is also used in the production of ethylene propylene diene monomer rubber (EPDM rubber), which is used in applications requiring heat, ozone and/or weather resistance. Other resins containing dicyclopentadiene are used in inks, adhesives, varnishes and paints.

There are no supported direct consumer uses of dicyclopentadiene.

Physical / Chemical Properties

Dicyclopentadiene (DCPD) is a colorless, waxy, flammable solid or liquid, with a camphor-like odor. The odor threshold is 0.005 ppm, and becomes irritating at 0.048 ppm. The flash point for dicyclopentadiene is 41°C (106 °F). The boiling and freezing points of dicyclopentadiene are 55 °C (132 °F) and -25 °C (-13 °F), respectively.

Dicyclopentadiene is classified as hazardous under the Globally Harmonized System (GHS) on classification and labeling for its flammability.

Health Effects

Dicyclopentadiene is classified as hazardous to health under GHS as an eye, skin and respiratory tract irritant, as well as being harmful if swallowed or inhaled.

The table below gives a full overview of the health effects assessment results for dicyclopentadiene.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by inhalation and ingestion. Headache, sneezing, and cough may occur. Exposure to high concentrations may cause nausea, central nervous system (CNS) depression with symptoms such as dizziness, weakness, headache, loss of coordination, loss of consciousness, coma, death and possibly cardiac sensitization. Ingestion of dicyclopentadiene would likely cause gastrointestinal tract irritation
Irritation / corrosion Skin / eye/ respiratory tract	Eye, skin and respiratory tract irritant
Sensitization	Not expected to cause sensitization by skin contact.
Toxicity after repeated exposure Oral / inhalation / dermal	Prolonged and repeated exposure to vapors may cause damage to the central nervous system, kidneys, liver, and adrenal glands
Genotoxicity / Mutagenicity	Experimental evidence indicates that dicyclopentadiene is not genotoxic in bacterial, yeast or mammalian cell systems
Carcinogenicity	No data available
Toxicity for reproduction	Based on available data no developmental toxicity or reproductive toxicity is anticipated

Environmental Effects

Dicyclopentadiene is classified under GHS as hazardous to the environment for its toxicity to aquatic life.

The table below gives a full overview of the environmental assessment results for dicyclopentadiene.

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

Fate and Behavior	Result
Biodegradation	Not readily biodegradable, although some microbial decomposition may take place
Bioaccumulation potential	Bioaccumulation is expected to occur at low levels
PBT / vPvB conclusion	Not considered to be either PBT or vPvB

PBT = Persistent, Bioaccumulative and Toxic in the environment.
vPvB = very Persistent and very Bioaccumulative in the environment.

Exposure

Human health
Because dicyclopentadiene is used predominantly in industrial systems as raw material or intermediate, direct consumer contact is expected to be low.

Personnel exposure can occur either in a dicyclopentadiene manufacturing facility or in industrial or manufacturing facilities that uses dicyclopentadiene. It is usually produced, distributed, stored and consumed in closed systems. However, worker exposure can potentially occur during operations such as product transfer, product sampling, or maintenance/ repair activities on product-containing systems. The risk of accidental exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

Environment
Dicyclopentadiene is predominantly used in closed industrial processes. Therefore emissions and environmental exposure to dicyclopentadiene are very low.

Risk Management Measures

For detailed guidance on the use of dicyclopentadiene, the Safety Data Sheet should be consulted.

Dicyclopentadiene should only be handled by knowledgeable and trained personnel.

Human Health
When using chemicals make sure that there is adequate ventilation. Always use appropriate chemical-resistant gloves to protect the hands and skin, wear eye protection such as chemical goggles and 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 the eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention.

In the case of transfer or maintenance operations, 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, such as the use of a complete suit protecting against chemicals and supplied air, a self-contained breathing apparatus, or a respirator.

Environmental
Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. All recovered material should be packaged, labelled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices.

Flammability / reactivity

Because of its flammability potential, dicyclopentadiene should not be handled or stored near heat, sparks or flame. Bonding and grounding measures may not be enough if nonconductive flammable liquids are involved. This liquid may accumulate static electricity even when transferred into properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water.

Regulatory Information / Classification and Labeling

For a detailed overview of the regulatory status of this substance, please refer to the Product Stewardship Bulletin (PSB) available on lyondellbasell.com.

Under the Globally Harmonized System (GHS) 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, found on lyondellbasell.com.

Conclusion Statements

- Dicyclopentadiene resins are found in inks, adhesives, varnishes and paints. It is also used to produce polyester resins for molded parts, such as tubs, and synthetic rubbers.
- Dicyclopentadiene is classified as hazardous under GHS. The main hazards are flammability, harmful by inhalation and ingestion, and irritation to eyes, skin and respiratory tract. It is also toxic to aquatic life.
- Exposure to human health and environment is considered low if properly handled. Also the manufacturing process, storage and handling operations are predominantly 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

Date of issue: 4 June 2015.

Disclaimer

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

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