

DICYCLOPENTADIENE Product Stewardship Summary

CAS number

77-73-6

Chemical formula

C₁₀H₁₂

What is dicyclopentadiene?

Dicyclopentadiene (DCPD) is produced as part of the separation process of crude C5 materials from pyrolysis gasoline (pygas), both of which are by-products of ethylene manufacture. It is a colourless, waxy, flammable solid or liquid, with a camphor-like odour.

How is dicyclopentadiene used?

Dicyclopentadiene is used in many products, ranging from high quality optical lenses through to flame retardants for plastics and hot melt adhesives. As a chemical intermediate it is used in insecticides, as a hardener and dryer in linseed and soybean oil, and in the production of EPDM (ethylene propylene diene monomer) elastomers, metallocenes, resins, varnishes, and paints. DCPD-containing products are also used in the production of hydrocarbon resins and unsaturated polyester resins.

Health, Safety and Environmental considerations

DCPD is highly flammable. It has a flashpoint of 32°C (90°F) and a boiling point of 170°C (338°F).

DCPD is harmful if swallowed and by inhalation. Its camphor-like odour may induce headaches and symptoms of nausea. In liquid or vapour form, DCPD can be irritating to the eyes, skin, nose, throat or respiratory system.

DCPD is not listed as a carcinogen by international or national organisations. However, DCPD products may contain benzene, which is listed as a human carcinogen by the International Agency for Research on Cancer (IARC).

The American Conference of Governmental Industrial Hygienists (ACGIH) has assigned an eight-hour occupational exposure limit of 5 parts per million (ppm) for DCPD. The most likely form of exposure to DCPD is inhalation of vapours. Breathing in high vapour concentrations could cause central nervous system depression.

DCPD is not inherently biodegradable. It is toxic to aquatic organisms and has the potential to bioaccumulate. However, in view of its high tendency to evaporate from water, it is not expected to pose a hazard to aquatic organisms.

Storage and Transport

DCPD is stored in controlled conditions to keep it stable. It is transported by road, rail, barge and ship.

Risk Characterization Summary

Risks associated with exposure to this product have been evaluated for the following “chain-of-commerce” activities: manufacture, storage, product transfer, transportation, and customers/markets. Due to health, safety and environmental considerations, it is only manufactured, stored and transported to customers in closed systems. Likewise, customers are limited to those who only use the product in closed systems as an intermediate for the manufacture of other chemicals. Proper equipment design and handling procedures maintain low risk from exposure to the product where the product is used as a chemical intermediate

This product stewardship summary 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 chemical’s applicable Material Safety Data Sheet, which should be consulted before use of the chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.