



Product Stewardship Summary Crude Dicyclopentadiene (DCPD)

The 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 all health and safety information. Additional information on this chemical is available through the applicable Material Safety Data Sheet which must be consulted before using this chemical. The product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:

Crude dicyclopentadiene (DCPD) is an amber liquid with a hydrocarbon odor containing, typically, 65% DCPD. Crude DCPD is a co-product of ethylene production at our company's Sweeny plant in Texas. Crude DCPD contains up to 75% of DCPD. In the US EPA High Production Volume (HPV) Program, Crude DCPD is part of the Resin Oil and Cycloidiene Dimer Concentrate Category.

CAS Number: 68477-54-3 CAS name: Distillates (petroleum), steam-cracked, C8-12 fraction

Synonyms: Resin Oil Stream; 24 Unit Hydro; Rerun Bottoms 24 Unit; Resin Oil Stream (Rerun Bottoms); DCPD

Product Uses:

There are no consumer uses of Crude DCPD. It is used as a feedstock to produce high purity DCPD.

Physical/Chemical Properties:

Crude DCPD is a Flammable Liquid. DCPD, the major component of crude DCPD, reacts with oxygen and strong oxidizing agents to form peroxides. Crude DCPD is stabilized with 4-tert-butylcatechol (TBC) to prevent peroxide formation. TBC levels are checked at regular intervals to ensure adequate levels. Electrostatic charge may accumulate during handling and therefore could create a hazardous condition. Maintenance of special handling and storage procedures is required.

Health Information:

Based on data for components, single exposures to high concentrations of Crude DCPD by the oral route or inhalation route at concentrations above recommended exposure standards of the components may be harmful. Due to its low viscosity, Crude DCPD can also cause potentially fatal lung damage in humans if aspirated into the lungs when swallowed or subsequently vomited. Crude DCPD is expected to have low acute toxicity following skin contact; however, severe overexposure to the skin may cause central nervous system depression and death. Crude DCPD may cause eye and skin irritation, but is not expected to be a skin sensitizer. Repeated or prolonged skin exposure may cause

drying and reddening of the skin due to defatting. Repeated ingestion or prolonged and repeated inhalation exposure to Crude DCPD at levels well above the recommended exposure standards of the components may cause effects in several organ systems. The components of Crude DCPD have not been shown to cause adverse effects on fertility, but have caused effects on other reproductive parameters in the presence of maternal toxicity and fetotoxicity in the absence of maternal toxicity. Most components of Crude DCPD show no clear evidence of genetic toxicity; however, one component (benzene, present at <0.2%) has been shown to be clastogenic. Some minor stream components of Crude DCPD (present at <2%) have been shown to cause cancer.

Environmental Information:

Based on available information for a material having components in common with Crude DCPD and for components, Crude DCPD may be toxic to aquatic organisms but is not expected to bioaccumulate; and high exposures to Crude DCPD may be harmful to wildlife. Since Crude DCPD is manufactured, handled, and transported in closed systems, environmental exposure to Crude DCPD is expected to be low. If Crude DCPD is released to water or soil, it is expected to rapidly partition into the air where it will rapidly degrade (half life of hours to days). Most of the Crude DCPD that does not evaporate quickly, due to adsorption to soil, is not expected to be highly mobile. Crude DCPD in soil is expected to degrade over extended periods of time.

Exposure Potential:

Exposure to Crude DCPD in occupational and non-occupational settings is expected to be very limited. Crude DCPD is handled in closed systems and protective equipment is used. Worker exposure is kept to a minimum.

- Workplace use: This refers to potential exposure to Crude DCPD to persons in a manufacturing facility or through various industrial applications. Manufacturing and transport involving Crude DCPD are usually conducted in closed systems, so human exposure is expected to be very limited. Occupational exposure may occur due to accidental leakage or a spill that may occur during sampling or at the points of loading of rail cars, barges or ships for transport of product, or at customers' facilities during off-loading.
- Consumer use: There is no direct consumer use of Crude DCPD. Non-occupational exposure to Crude DCPD is expected to be negligible since Crude DCPD is consumed by customers as intermediates in the production of other products.
- Potential environmental release: Crude DCPD is stored and transported in closed systems. Exposure to the environment is expected to be very low. Chevron Phillips Chemical is committed to operating in an environmentally responsible manner and has adopted the American Chemistry Council's Responsible Care[®] initiative.

Risk Management:

Chevron Phillips Chemical is committed to Product Stewardship and doing business responsibly. We endeavor to provide sufficient information for the safe use and handling

of all our products. To that end, Material Safety Data Sheet and certificate of analysis are provided to the customers. In addition, we have completed a product risk assessment to evaluate the potential risks associated with the distribution and use of Crude DCPD.

Regulatory Information:

Regulations exist that govern the manufacture, sale, transportation, use and/or disposal of Crude DCPD. These regulations may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant product Material Safety Data Sheet and local and Federal regulations.

Sources of Additional Information:

- Organization for Economic Cooperation and Development (OECD) - eChemPortal web-based search tool (use applicable CAS No):
<http://www.echemportal.org/echemportal/>
- U.S. Environmental Protection Agency (US EPA) - High Production Volume Information System (HPVIS):
<http://www.epa.gov/hpvis/index.html>
- European Chemicals Agency (ECHA) – Information on Registered Substances:
<http://apps.echa.europa.eu/registered/registered-sub.aspx>
- Chevron Phillips Chemical’s olefins product website:
<http://www.cpchem.com/bl/olefins/en-us/Pages/Products.aspx>
- Chevron Phillips Chemical’s Material Safety Data Sheets:
<http://www.cpchem.com/en-us/pages/msdssearch.aspx>

Conclusion:

Crude DCPD is mainly used to produce high purity dicyclopentadiene. Crude DCPD is flammable and exposure at high levels may be harmful. Crude DCPD is classified as a human carcinogen based on the presence of benzene, a minor component of Crude DCPD. Benzene is classified as a known human carcinogen by various regulatory agencies worldwide. Appropriate personal protective equipment practices and labeling, storage, and transportation procedures shall be followed. Further, the relevant product Material Safety Data Sheets and applicable regulatory guidelines and requirements, including, but not limited to, Occupational Health and Safety Administration (OSHA) guidelines, should be consulted prior to the use or handling of Crude DCPD.

Contact Information:

<http://www.cpchem.com/>

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