



Product Stewardship Summary Debutanized Aromatic Concentrate (DAC)/Raw Pyrolysis Gasoline (RPG)

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:

Debutanized Aromatic Concentrate (DAC), also known as Raw Pyrolysis Gasoline (RPG), is an amber liquid with an olefinic odor containing up to 70% benzene. DAC/RPG is a by-product of ethylene production. It is a complex combination of hydrocarbons produced by the distillation of products from the ethylene manufacturing process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C5 through C11.

CAS Number: 68921-67-5 CAS name: HYDROCARBONS, ETHYLENE-MANUF.-BY-PRODUCT DISTN. RESIDUES

Synonyms: Aromatic Concentrate, Aromatic Distillate, DAC, Debutanized Aromatic Concentrate, Debutanizer Bottoms, Dripolene, Pygas, Pyrolysis Gasoline, Raw Aromatic Concentrate, Raw Pyrolysis Gasoline, RPG.

Product Uses:

There are no consumer uses of DAC/RPG. Most DAC/RPG is consumed internally as an intermediate for the production of Isoprene Feedstock, Hydrogenated Pyrolysis Gasoline, and Heavy Aromatic Distillate. It is occasionally sold externally as a feedstock.

Physical/Chemical Properties:

DAC/RPG is classified by the U.S. Department of Transportation and by Occupational Health and Safety Administration (OSHA) as a Flammable Liquid. Maintenance of special handling and storage procedures is required.

Health Information:

Based on data for the components, DAC/RPG may be harmful if swallowed; also, ingestion or subsequent vomiting may present an aspiration hazard. Breathing of vapors at concentrations above the recommended exposure standards of the components can cause central nervous system effects (e.g. drowsiness, lightheadedness etc.); and, based on data on some of the components, inhalation of very high doses of DAC/RPG may weakly sensitize the heart to epinephrine (cardiac sensitization). DAC/RPG may cause eye, skin, and respiratory tract irritation. Based on data for components, prolonged and repeated exposure to DAC/RPG at high concentrations may cause adverse effects,

including cancer, developmental toxicity, and damage to several organ systems. DAC/RPG may cause genetic toxicity. However, occupational exposure to DAC/RPG is low due to manufacture and handling in closed systems and non-occupational exposure is expected to be negligible.

Environmental Information:

Based on available data for the components, DAC/RPG is expected to be toxic to aquatic organisms but is not expected to bioaccumulate. Since DAC/RPG is manufactured and handled in closed systems and is transported short distances in closed systems, environmental exposure to DAC/RPG is expected to be very low. If DAC/RPG 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). The DAC/RPG components that do not evaporate quickly, are expected to be highly mobile in soil, and may reach ground water. Degradation of some components in soil and groundwater is expected to occur within a period of days, and other components are likely to degrade over extended periods of time. DAC/RPG is not expected to accumulate to present an environmental hazard.

Exposure Potential:

Exposure to DAC/RPG in occupational and non-occupational settings is expected to be very limited. DAC/RPG 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 DAC/RPG to persons in a manufacturing facility or through various industrial applications. Manufacturing and transport involving DAC/RPG are usually conducted in closed systems, so human exposure is expected to be very limited. Occupational exposure may occur during sampling or at the points of loading and off-loading of barges for transport.
- *Consumer use:* There is no direct consumer use of DAC/RPG. Non-occupational exposure to DAC/RPG is expected to be negligible since DAC/RPG is consumed internally or by the customer as intermediates in the production of other products and is transported via pipeline or barge for short distances.
- *Potential environmental release:* DAC/RPG 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 DAC/RPG.

Regulatory Information:

Regulations exist that govern the manufacture, sale, transportation, use and/or disposal of DAC/RPG. 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://webnet3.oecd.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:

DAC/RPG is mainly used to produce other products. DAC/RPG is flammable. Exposure at high levels may cause central nervous system effects. DAC/RPG is classified as human carcinogen based on the presence of benzene, a major component of DAC/RPG. Benzene is classified as a known human carcinogen by various regulatory agencies worldwide. Appropriate personal protective equipment practices and labeling, storage, and transportation procedures must 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 DAC/RPG.

Contact Information:

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

Date: November 22, 2011