Product Safety Assessment

Resin Feed

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Names
- CAS No. 68477-54-3
- Petroleum distillate, steam-cracked, C8–C12 fraction
- Resin Feed
- Cracked Kerosene

Product Overview
- Resin Feed is a clear to yellow liquid with a strong aromatic or camphor-like odor. It is a mixture of mainly aromatic C9 and C10 components, rich in indene and methylstyrenes, and does not mix with water.\(^1\) For further details, see Product Description.
- Resin Feed is mainly used to produce hydrocarbon resins that can be used in applications such as printing inks, hot melt pressure sensitive adhesives, rubbers, paints, varnishes, and road marking paints.\(^2\) For further details, see Product Uses.
- The most likely potential exposure route occurs in the workplace through inhalation of low-level concentrations in air of vapors that escape from the closed process. Because Resin Feed is used to make polymers and is consumed in the production process, consumer exposure to Resin Feed is unlikely. For further details, see Exposure Potential.
- Small amounts of Resin Feed swallowed incidental to normal handling operations have low toxicity; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting and can cause lung damage or even death. Eye contact may cause moderate irritation and temporary corneal injury. Brief skin contact may cause severe irritation with pain and local redness. Repeated exposure may cause irritation, even a burn. Human case reports suggest naphthalene, a component of this product, may be absorbed through the skin in toxic amounts, especially in children. Excessive vapor concentrations are attainable and may cause irritation to the upper respiratory tract and central nervous system depression. Health hazards have been associated with some components of Resin Feed, such as styrene, ethylbenzene, and naphthalene.\(^3\) For further details, see Health Information.
- Groundwater contamination is possible in the event of spills or leaks from production, transportation, or storage equipment.\(^4\) The bioconcentration potential (tendency to accumulate in the food chain) for resin feed is low to moderate. Although the material is inherently biodegradable, biodegradation is slow. Resin Feed is toxic to aquatic organisms.\(^5\) For further details, see Environmental Information.

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- Resin Feed is flammable. It is stable under recommended storage conditions. Elevated temperatures or certain contaminants can cause decomposition or hazardous polymerization. For further details, see Physical Hazard Information.

**Manufacture of Product**

- **Locations** – Resin Feed is produced in Terneuzen, The Netherlands.
- **Process** – Resin Feed originates from the high-temperature cracking of petroleum fractions. Resin Feed is separated by distillation during the recovery of benzene from pyrolysis gasoline. As a distillation “bottoms” product, it usually contains heavier components such as naphthalene.

**Product Description**

Resin Feed is a clear to yellow liquid with a strong aromatic or camphor-like odor. The freezing point and boiling point vary with composition and are usually described by a range. Resin Feed does not mix with water.

For more detailed composition information, refer to the relevant Safety Data Sheet or Product Data Sheet.

**Product Uses**

Resin Feed is used to produce hydrocarbon-based resins, such as C9 aromatic-based resins or C5/C9-based resins. These resins are typically used in applications in which the color of the resin is not very important, such as printing inks, road markings, or paints. They are also used for concrete-cure additives, floor tile, foundry-core binding, hot-melt pressure-sensitive adhesives, paper sizing, varnishes, rubbers, and sealing.

**Exposure Potential**

Resin Feed is used in the production of hydrocarbon-based resins. Based on the uses for Resin Feed, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a hydrocarbon processing facility or in the various industrial or manufacturing facilities that use Resin Feed in production. Those working with Resin Feed in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Adequate ventilation should be used to maintain vapor levels below recommended guidelines. Workers should wear safety glasses and protective gloves and clothing to prevent exposure when prolonged or frequently repeated contact could occur. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit exposure. There are established threshold limit values (TLV) and permissible exposure limits (PEL) for many of the components in this product. Occupational exposure limits (OEL) are used in the workplace to limit exposure to the components of this material. See Health Information.
- **Consumer exposure to Resin Feed** – Consumer exposure to this product is unlikely. Resin Feed is produced, transported, and processed in closed systems within industrial facilities. Resin Feed is used to make polymers for various commercial paints, inks, varnishes, and other products that are rarely used by consumers. These materials are consumed in the
production process, leaving very little to none of the substance in the final product. See Health Information.

- **Environmental releases** – Environmental exposure to Resin Feed is limited since the material is produced, processed, transported, and stored in industrial facilities in which the products are contained in closed systems. In the event of a spill, appropriate actions should be taken to avoid fire, contamination of the environment, or exposure to Resin Feed. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. A large spill or release can be hazardous due to the physical properties, effects to the environment, or health hazards associated with this product or its components. If a large release occurs, contact local and/or state or provincial authorities for cleanup assistance. See Environmental, Health, and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

**Health Information**

- **Eye contact** – Eye contact with liquid or vapor resin feed oils may cause moderate irritation and slight temporary corneal injury.

- **Skin contact** – Brief skin contact may cause severe irritation with pain and local redness. Repeated exposure may cause irritation, even a burn. Resin Feed contains moderate amounts of naphthalene. Human case reports suggest that naphthalene may be absorbed through the skin in toxic amounts, especially in children.

- **Inhalation** – Excessive vapor concentrations are attainable and excessive exposure may cause irritation to the upper respiratory tract (nose and throat) and central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects, including dizziness or drowsiness.

- **Ingestion** – Small amounts of Resin Feed swallowed incidental to normal handling operations have low toxicity; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting and can cause lung damage or even death due to chemical pneumonia.

- **Chronic exposure** – Excessive exposure to components in Resin Feed may cause hemolysis, impairing the blood's ability to transport oxygen. In animals, effects have been reported on the central nervous system, kidney, liver, and spleen.

**Cancer Information** – Components that are present in this product have caused cancer in laboratory animals: naphthalene, benzene, ethylbenzene, and styrene. Benzene (<0.1%) is classified by the International Agency for Research on Cancer (IARC) as Group 1: Carcinogenic to humans. Benzene is also classified as a known carcinogen by National Toxicology Program (NTP). In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative. An increased incidence of lung tumors was observed in mice from an inhalation study on styrene. The relevance of this finding to humans is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

For more information, see the relevant Safety Data Sheet.
Environmental Information

Resin Feed has a low to moderate bioconcentration potential (tendency to accumulate in the food chain). Although the components of Resin Feed are inherently biodegradable, biodegradation is slow. Resin Feed is toxic to aquatic organisms.

Resin Feed is immiscible in water and may float on the surface. Prevent any material from entering soil, ditches, sewers, waterways, and/or groundwater.

For more information, see the relevant Safety Data Sheet.

Physical Hazard Information

Resin Feed is a flammable liquid. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Ignition and/or flash back may occur. Store Resin Feed in steel containers, preferably outdoors, away from direct sunlight, above ground, and surrounded by dikes to contain spills or leaks. Containers, even those that have been emptied, can contain vapors.

Resin Feed is stable under recommended storage conditions. Avoid elevated temperatures, which can result in decomposition. Generation of gas during decomposition can cause rapid pressure build-up in closed systems.

Avoid contact with oxidizing materials and clay-based absorbents and sawdust. Elevated temperatures can cause hazardous polymerization. Polymerization can be catalyzed by aluminum, aluminum chloride, and boron.

For more information, see the relevant Safety Data Sheet.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of Resin Feed. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet or Contact Us.

Additional Information

- Safety Data Sheets (www.dow.com/webapps/msds/MSDSResults.aspx?TPCode=00115164&Country=All)
- Contact Us (www.dow.com/hydrocarbons/aromatics/contact/)
- European Chemical Substances Information System (http://esis.jrc.ec.europa.eu/) Search by CAS# 68477-54-3 to retrieve information.

For more information about Resin Feed, visit the Dow Aromatics Products web site at www.dow.com/hydrocarbons/aromatics/.

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References

1. *Resin Feed Safety Data Sheet*, The Dow Chemical Company, Composition section and Physical and Chemical Properties section.
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