

BENZENE-CONTAINING FEEDSTOCKS

(Includes Pyrolysis Gasoline; Benzene Concentrate; Reformate; Benzene Heartcut)

Product Stewardship Summary

(CAS number – Various)

What are Benzene-Containing Feedstocks?

Benzene-containing feedstocks are complex substances obtained from crude oil in a refinery distillation process or as the high benzene naphtha fraction in steam cracking processes. Many names are used for these streams, the most common being Pygas (Pyrolysis Gasoline), containing 30 - 70% benzene and benzene concentrate, containing up to 80% benzene. Other chemicals contained in the stream may include toluene, xylene, ethylbenzene, dicyclopentadiene, and styrene. Benzene-containing feedstocks are clear liquids with an aromatic odour.

How are Benzene-Containing Feedstocks Used?

Benzene is extracted from these feedstocks. Benzene is a basic chemical building block used in the manufacture of other chemical products. The streams after benzene extraction are then used in other processes.

Health, Safety and Environmental Considerations

Benzene-containing feedstocks are irritating to the skin and eyes. If vapours are inhaled, irritation to the respiratory tract may be experienced. Single exposure to very high concentrations can cause disorientation, euphoria and unconsciousness. Prolonged moderate exposure can cause toxic effects on the blood and blood-forming organs.

A component of concern that is present in these feedstocks is benzene, which is listed as a human carcinogen by the International Agency for Research on Cancer (IARC). Prolonged, moderate exposure to benzene has been associated with toxic effects on the blood and blood-forming organs, such as anemia, acute myelogenous leukemia, or myelodysplastic syndrome. Benzene is classified as a mutagen and has been associated with chromosomal aberrations and micronuclei.

In the work environment, the occupational exposure limit for benzene globally ranges from 0.2 - 1 ppm. The available information shows that for the general public, exposures to benzene in ambient air are considerably lower with no evidence for concern regarding health effects at these low (ppb) levels.

Benzene-containing feedstocks are extremely flammable and there is a risk of vapour ignition at normal handling temperatures. The vapour is heavier than air and will spread along the ground if released, so care needs to be taken to ensure that the vapour is not ignited by a distant source. It will also float on water and can be ignited on surface water. Electrostatic charges may be generated during handling.

If spilled in water, these materials are toxic to fish, but are very volatile and evaporate rapidly. They are not soluble in water and not rapidly biodegradable.

Storing and Transporting Benzene-Containing Feedstocks

Benzene-containing feedstocks are stored in mild steel or stainless steel tanks. Benzene-containing feedstocks are transported by pipeline and vessel. This material is flammable and can accumulate static electricity during transfer; therefore precautionary measures to prevent static discharge must be taken.

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 [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.



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