Phenol
Product Stewardship Summary
(CAS number 108-95-2)

Chemical Formula for Phenol
C₆H₅OH

What is Phenol?
Phenol, also known as Hydroxybenzene, Monohydroxy Benzene and Carbolic Acid, has a sweet odor and is seen as white crystals below 109°F/43°C and as a clear liquid upon melting. Phenol is also classified as combustible with a flash point of 175°F/79.4°C. Phenol is derived from the basic raw materials of benzene and propylene. Phenol is typically a solid at room temperature as it solidifies at 106°F/41°C.

How is Phenol Used?
Phenol is a valuable intermediate in the manufacture of detergents, agricultural chemicals, medicines, plasticisers and dyes. Phenol is a major component of the phenolic adhesives used in wood products such as plywood and oriented strand board. It is also used to produce phenolic resins, which are used in the molding of heat-resistant components for household appliances, counter-top and flooring laminates, and foundry castings.

The largest single market for phenol is in the production of Bisphenol A (BPA), which in turn, is used to manufacture polycarbonate and epoxy resins for products such as CDs, circuit boards and fiberglass boats.

Health, Safety and Environmental Considerations
Phenol is toxic and corrosive. Most exposure to phenol is through skin contact; it can be fatal if absorbed through the skin or if swallowed. Phenol vapours will cause severe eye, respiratory and digestive tract burns. Even moderate exposure might be fatal since phenol deadens the feeling in exposed areas.

Although phenol is classified as a mutagen (such chemicals may have a cancer risk), there is inadequate evidence in experimental animals for the carcinogenicity of phenol. The international Agency for Research on Cancer (IARC), has classified phenol as a Group 3 agent, “Not classifiable as to its carcinogenicity to humans”.

The American Conference of Governmental Industrial Hygienists (ACGIH) has assigned an eight-hour occupational exposure limit of 5 parts per million (ppm) for phenol.

Phenol is toxic to aquatic organisms. It is readily biodegradable and has a low potential to bioaccumulate.
Storing and Transporting Phenol

Phenol should be stored in well-ventilated areas away from direct sunlight, ignition sources and other sources of heat. Phenol should be stored in stainless steel or Carbozinc II lined tanks. Storage containers are normally kept at temperatures above 106°F/41°C to maintain the product as a liquid. Take precautionary measures against static discharge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Phenol may be transported by tank truck, rail car and vessel.

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.

Disclaimer

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