CHEMICAL INTERMEDIATES

Phenol

PRODUCT SAFETY SUMMARY

May 2018

C_6H_5OH

Chemical Name	Phenol
Chemical Category (if applicable)	Organic Acid
Synonyms	Carbolic acid; Phenylic acid; Hydroxybenzene; Monohydroxybenzene; Oxybenzene; Benzenol; Benzophenol; Monophenol; Phenyl hydrate; and Phenylic alcohol
CAS Number	108-95-2
CAS Name	Phenol
EC (EINECS) Number	203-632-7
Other identifier (Please specify)	GPS0075

Description

- Phenol is an organic chemical used to produce a wide variety of chemical intermediates. The primary chemical intermediates include phenolic resins, bisphenol A, caprolactam, alkyl phenols and adipic acid. Phenol is also used in numerous small volume applications such as plasticizers, herbicides, wood preservatives, pharmaceuticals and dyes.
- Workplace exposures to phenol during its manufacture and use are expected to be minimal because exposures are controlled with process enclosures, local exhaust ventilation, and personal protective equipment. Good manufacturing practices and industrial hygiene practices are also implemented to prevent or reduce exposure to phenol. Worksite safety programs also follow recommended exposure guidelines. Please see the Safety Data Sheet (SDS) for additional information.
- Phenol, available in solid or liquid form, is colorless to light pink and has a sweet aromatic odor. It is stable under normal conditions of storage and use. The liquid and vapor are combustible. Phenol is incompatible with strong oxidizing agents, calcium hypochlorite, halogens, halogenated compounds, aluminum chloride, and nitrobenzene. Hot phenol can attack aluminum, lead, magnesium and zinc. It can react exothermally with peroxymonosulfuric acid, sodium nitrate, 1,3-butadiene and boron trifluoride diethyl ether. When phenol is heated to decomposition (ca. 715°C/1319°F), decomposition products include carbon monoxide and carbon dioxide.
- Phenol can be harmful or fatal if swallowed. Phenol is corrosive to the eyes, skin, digestive tract, and its vapors are corrosive to the respiratory tract. Systemic absorption of phenol after ingestion, skin contact, or inhalation may cause central nervous system effects (excitability, dizziness, loss of balance and coordination, confusion, and unconsciousness), liver and kidney damage, coma, respiratory failure, and death.
- Repeated or prolonged skin contact with phenol may cause dermatitis, or even second and third-degree burns. Long-term or repeated inhalation exposures to phenol vapor may cause lung edema. Chronic phenol poisoning produces digestive disturbances, central nervous system effects, possibly skin discoloration and eruptions, liver and kidney effects, heart effects such as dysrhythmia, seizures, and coma. Besides its hydrophobic effects, another mechanism for the toxicity of phenol may be the formation of phenoxy radicals.

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Description *(Continued)*

- Chemical burns from skin exposures can be decontaminated by washing with polyethylene glycol (PEG), isopropyl alcohol or perhaps even copious amounts of water. Removal of contaminated clothing is required, as well as immediate hospital treatment for large splashes. This is particularly important if the phenol is mixed with chloroform (a commonly-used mixture in molecular biology for DNA & RNA purification.)
- Occupational exposure to phenol has not been associated with carcinogenic effects in humans.
- There is no evidence that phenol is a reproductive or developmental toxin.
- Phenol is appreciably soluble (8.3 g/100 ml, 0.88 M) in water and is toxic to aquatic organisms, such as fish, crustaceans and algae. The hazard of phenol in the environment is caused by the effect on the metabolism, survival and growth of most organisms. Sub-lethal doses can interfere with various enzyme activities to produce unpredictable changes in fish.

Useful Resources

For more information about this product, contact AdvanSix.

Contact AdvanSix
To learn more about phenol visit
AdvanSix.com/chemicalintermediates
or call:
1-844-890-8949 (toll free, U.S./Can.)
+1-973-526-1800 (international)

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