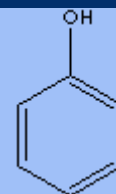


PHENOL

PRODUCT IDENTIFICATION

CAS NO.	108-95-2
EINECS NO.	203-632-7
FORMULA	C ₆ H ₅ OH
MOL WT.	94.11
H.S. CODE	2907.11
TOXICITY	Oral rat LD50: 317 mg/kg
SYNONYMS	Phenyl alcohol; Phenyl hydrate; Fenol; Fenolo; Carbolic acid; Phenylic acid; Hydroxybenzene; Monohydroxybenzene; Phenyl hydroxide;



DERIVATION

CLASSIFICATION

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Clear to light pink crystals
MELTING POINT	40 - 43 C
BOILING POINT	181 C
SPECIFIC GRAVITY	1.07
SOLUBILITY IN WATER	8 g/100 ml (easily soluble in alcohol)
pH	
VAPOR DENSITY	3.2
AUTOIGNITION	
NFPA RATINGS	Health: 4; Flammability: 2; Reactivity: 0
REFRACTIVE INDEX	
FLASH POINT	79 C
STABILITY	Stable under ordinary conditions

GENERAL DESCRIPTION & APPLICATIONS

Phenol is the simplest aromatic alcohol which characterized by a hydroxyl (-OH) group attached to a benzene ring. The term phenol is not only for phenol itself but also for a class of aromatic compounds possessing a hydroxyl group attached to a benzene ring or a complex ring system. Phenol in water solution is sometimes called carbolic acid. Phenols differs from aliphatic alcohols which hydroxyl group is bonded to a saturated carbon atom. Due to the tendency of pi-orbital overlap between carbon and oxygen, phenol can lose easily the H⁺ ion from the hydroxyl group, resulting in higher acidity than aliphatic alcohols (but weaker acidity than carboxylic acids). The intermediate state losing hydrogen ion (H⁺) from the hydroxyl group in a phenol is called phenolate anion C₆H₅O⁻. It reacts with strong bases to form salts called phenolates.

Pure phenol is a white crystalline solid that melts at 41 C, boils at 182 C. It is moderately soluble in water and is soluble in ethanol and ether. Phenols form stronger hydrogen bonds than aliphatic alcohols and. Phenols are more soluble in water than alcohols and have higher boiling points. Many phenols have a sharp, spicy odour, but phenol smells bland and sweetish. It is highly toxic and caustic. Some phenols interfere with the endocrine system and disrupt the function of hormones. They have antiseptic property and are used in formulating disinfectants, deodorizers, and pesticides.

Phenol is synthesized by either the hydrolysis of chlorobenzene (Raschig process) or the oxidation of cumene in air to form cumene hydroperoxide, which is then cleaved into phenol and acetone, a valuable by-product (Cumene process). Phenols are acidic and react with strong bases to form alkali-metal salts known as phenoxides. The most important reaction of

phenol is its condensation (which produces water as a side effect) with formaldehyde. Commercially main derivatives from phenol are ; Bisphenol A (> Polycarbonate and Epoxy Resins), Phenolic Resins (> Moulding Binders, Insulation Wool), Cyclohexane (> Caprolactam), Alkylphenols (> Surfactants), Salicylic Acid (> Pharmaceuticals). Phenol is an important parent material in the production of thermosetting resins, drugs, dyes, pesticides, and explosives.

SALES SPECIFICATION

BPA GRADE

MOLTEN COLOR	10 max (Pt/Co Scale)
WATER	0.03% max
Fe	1ppm max
SOLUTION CLARITY	Clear (in water)
TOTAL IMPURITY	0.05% max

RESIN GRADE

PURITY	99.7% min
MOLTEN COLOR	20 max (Pt/Co Scale)
WATER	0.1% max
SOLUTION CLARITY	Clear (in water)

TRANSPORTATION

PACKING	In bulk
HAZARD CLASS	6.1 (Packing Group: II)
UN NO.	1671

OTHER INFORMATION

Hazard Symbols: T, Risk Phrases: 34-24/25, Safety Phrases: 1/2-28-45