

para-CRESOL

PRODUCT IDENTIFICATION

CAS NO. 106-44-5

EINECS NO. 203-398-6

FORMULA $\text{CH}_3\text{C}_6\text{H}_4\text{OH}$

MOL WT. 108.14

H.S. CODE 2907.12

TOXICITY Oral rat LD50: 207 mg/kg

SYNONYMS p-Cresol; p-Methylphenol; p-Methylphenylol;
p-Hydroxytoluene; p-Oxytoluene; p-Toluol; 1-Hydroxy-4-methylbenzene; 4-Hydroxytoluene; 4-Methylphenol; p-Cresylic acid; Paracresol; p-Kresol (German); 4-Cresol;

DERIVATION

CLASSIFICATION

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE Clear to to slightly amber semi solid, phenolic odor

MELTING POINT 33 - 34 C

BOILING POINT 195 - 205 C

SPECIFIC GRAVITY 1.02 - 1.03

SOLUBILITY IN WATER 23 g/l

SOLVENT SOLUBILITY

pH

VAPOR DENSITY 3.72

AUTOIGNITION 550 C

NFPA RATINGS Health: 3; Flammability: 2; Reactivity: 0

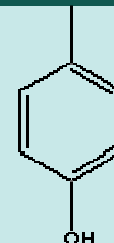
REFRACTIVE INDEX

FLASH POINT 86 - 87 C

STABILITY Stable under ordinary conditions

GENERAL DESCRIPTION & APPLICATIONS

Cresols are methyl substituted phenols at relative to the hydroxyl group, ortho-, meta-, and para-cresol. There are three structural isomers. The names of the three compounds indicate which of the hydrogens on the benzene ring portion of the molecule have been replaced. They are obtained from coal tar or petroleum as by-products in the fractional distillation and in coal gasification. They are also formed as by-products during the combustion of wood. The various isomers can be manufactured by the methylation of phenol, toluene sulfonation and alkaline hydrolysis, or the hydrolysis of 2-isopropyltoluene or alkaline chlorotoluene. Because the boiling points of these three compounds are nearly the same, a separation of a mixture of the three into its pure components is impractical. They are highly flammable and soluble in water, ethanol, ether, acetone and alkali hydroxides. The mixture of cresols obtained from coal tar is called cresylic acid, an important technical product used as a disinfectant and in the manufacture of resins and tricresyl phosphate. Cresylic acid also refs to the mixture of phenols containing varying amounts of xylenols, cresols, and other high-boiling fractions, but not more than 5 percent phenol. Commercial cresols are prepared in a wide range of grades and purities to meet the user's requirements. It is a liquid from clear to brown and is toxic to animals including human. It is corrosive and is a more powerful disinfectant and antiseptic than phenol. The primary use is for sterilizing as disinfectants and deodorizers, and pesticides. Its solution is used as household cleaners as a disinfectant. Creosote products are



mixtures of many aromatic hydrocarbons including phenols and cresols. Creosote obtained from coal tar is poisonous and provides protection against fungi, shipworms, termites, and psoriasis. It is used chiefly as a wood preservative, e.g., in wooden poles, railroad ties, and timber. They are also used as animal and bird repellents. Animals may suffer skin irritation or ulceration from creosote treated wood. Coal tar creosote and its derivatives are the most widely used wood preservatives. Wood tar creosote is a mixture of chiefly guaiacol, creosols and other phenolic compounds obtained from wood tar (mainly beech) by distillation between 203 and 220 C. It is insoluble in water, soluble in methanol, acetone. It is used as an external antiseptic, expectorant, gastric sedative, deodorant, and as an antiseptic parasiticide veterinary use in the form of creosote carbonate. It is used in the synthesis of pharmaceuticals and vanillin. Each cresols are used as solvents or disinfectants and as useful as raw materials for various chemical products including;

- Antiseptics, disinfectants
- Fragrances, deodorizing, odor-enhancer
- Resins (phenol-formaldehyde, phenolic, and epoxy) and their additives
- Phosphate esters (plasticizers)
- Herbicides and pharmaceuticals
- Rubber and plastic antioxidants
- Dyes and pigments
- Household cleaners and automotive degreasers
- Solvent and paints
- Lubricating oils, gasoline additives
- Adhesives
- Fiber and wood preservatives
- UV- absorbers and photographic chemicals
- Ore flotation agents

Cresols undergo electrophilic substitution reactions such as chlorination, bromination, sulfonation and nitration at the vacant position. They also undergo condensation reactions with aldehydes, ketones or dienes. O-cresol is a starting material for the synthesis of herbicides such as 4,6-dinitro-o-cresol (DNOC) and 2-methyl-4-chlorophenoxyacetic acid (MCPA). Meta-cresol is used in the manufacture of explosives. Meta and para-cresol are used in phenol-formaldehyde resins and are converted to tricresyl phosphate used as a plasticizer and gasoline additive and antioxidants such as di-tert-butylcresols (BHT). Ortho- and para-cresols are used in the production of lubricating oils and motor fuels.

SALES SPECIFICATION

APPEARANCE	Clear to to slightly amber semi solid
PURITY	98.0% min
ISOMERS	1.8% max
DISTILLATION RANGE	189 - 192 C
SULFUR	Nil
PHENOL	0.5% max
SPECIFIC GRAVITY	1.02 - 1.03 at 70 C
MOISTURE	0.2% max

TRANSPORTATION

PACKING	200kg in drum
HAZARD CLASS	6.1 (Packing Group: II)
UN NO.	2076

OTHER INFORMATION

Hazard Symbols: T , Risk Phrases: 34-24/25, Safety Phrases: 36/37/39-45