

TRIPHENYL PHOSPHINE

PRODUCT IDENTIFICATION

CAS NO. 603-35-0; 112771-47-8; 630403-25-7

EINECS NO. 210-036-0

FORMULA $(C_6H_5)_3P$

MOL WT. 262.29

H.S. CODE 2931.00.9999

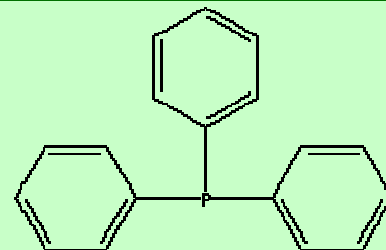
TOXICITY Oral rat LD50: 700 mg/kg

SYNONYMS Triphenylphosphorus;

Phosphoris triphenyl; Trifenylfosfin; Triphenylphosphide; Triphenylphosphane;

SMILES P(c1ccccc1)(c1ccccc1)c1ccccc1

CLASSIFICATION Organophosphines / tertiary phosphine



PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE white powder, odorless

MELTING POINT 80 C

BOILING POINT 377 C

SPECIFIC GRAVITY 1.132

SOLUBILITY IN WATER Insoluble (0.279 mg/l)

VAPOR DENSITY 9

pKa (Dissociation Constant at 20 C)

log Pow 5.69 (Octanol-water)

VAPOR PRESSURE (mmHg at 25 C)

HENRY'S LAW 2.26E-08 (atm-m³/mole at 25 C)

OH RATE 5.85E-12 (cm³/molecule-sec at 25 C Atmospheric)

AUTOIGNITION

REFRACTIVE INDEX

NFPA RATINGS Health: 2; Flammability: 1; Reactivity: 0

FLASH POINT 181

STABILITY Stable under ordinary conditions

GENERAL DESCRIPTION & EXTERNAL LINKS

Phosphine, also called Hydrogen Phosphide, PH_3 , is a colourless, poisonous, spontaneously flammable gas, with a disagreeable, garlic-like odour; melting point -133.5 C, boiling point -87.4 C. Phosphine is manufactured by the hydrolysis of metal phosphides, by the electrolysis of phosphorus in the presence of hydrogen, or by the phosphorus-steam reaction. Phosphine has the structure of ammonia (NH_3) but with phosphorus in place of nitrogen. It is slightly soluble in cold water and soluble in alcohol. Phosphine is less soluble in water than ammonia. Phosphine is used in the synthesis of organophosphines and phosphonium derivatives and as a dopant in the manufacture of semiconductors. Aluminium or magnesium phosphide are used as formulations prepared for fumigation in pest control, and zinc phosphide is used as a rodenticide. Phophene is a starting material for the preparation of pesticides and flame retardants. Organophosphines are used as solvents for the extraction and separation processes, flame retardants, and in formulating fumigants and electronics applications of semiconductor manufacturing. Tertiary alkylphosphines act as chemical intermediate and catalyst in the production of industrial acids, alcohols, flavors &

fragrances, and pharmaceuticals. Phosphonium describes a univalent radical, PH_4 . Quaternary phosphonium salts, obtained from tertiary alkylphosphines with the treatment with alkyl or aromatic halides, are replacing phase transfer catalysts and biocides functions for quaternary ammonium salts due to more effective performance and higher thermal stability. Phosphonium salts are used as epoxy curing agents. A variety of phosphine transition metal complexes including chiral complexes are synthesized as the very reactive and versatile homogeneous catalysts and stereospecific as well. Triphenylphosphine is used as a catalyst for organic synthesis, intermediate for phase transfer catalysts and Wittig reactions.

Molecules containing a tertiary phosphine have played an important role in the development of organic reactions, predominantly in catalysis. The electronic and steric properties of these molecules have made them a prime choice for the synthesis of ligands that are used in the design of metal-based catalysts. Furthermore, they stabilize a wide variety of metal complexes and are relatively inert to many reaction conditions. These properties can be systematically tuned with predictable results. They are used in a variety of catalytic reactions such as cross-coupling and asymmetric synthesis.....

SALES SPECIFICATION

APPEARANCE	White powder
ASSAY	99.0% min
MELTING POINT	78.5 C min
RESIDUE ON IGNITION	1.0% max
LOSS ON DRYING	0.01% max

TRANSPORTATION

PACKING	Not regulated
HAZARD CLASS	
UN NO.	

OTHER INFORMATION

Hazard Symbols: XN, Risk Phrases: 43-50-53-68/20/22, Safety Phrases: 36/37-45-57-60