

# PENTAERYTHRITOL

## PRODUCT IDENTIFICATION

CAS NO. 115-77-5; 75398-86-6; 88201-29-0

EINECS NO. 204-104-9

FORMULA  $C(CH_2OH)_4$

MOL WT. 136.15

H.S. CODE 2905.42

TOXICITY Oral, rat LD50: 19500 mg/kg

SYNONYMS 2,2-Bis(hydroxymethyl)-1,3-Propanediol; PETP;

Hercules P 6; Monopentaerythritol; Tetramethylolmethane; THME; Pentaerythritol;

Tetrakis(hydroxymethyl)methane; Pentaerythrite; Pentek; 五羧基丙烷 (Chinese);

Tetrahydroxymethylmetane; Pentaeritritol (Spanish); Pentaérythritol (French);

RAW MATERIALS Formaldehyde, Acetaldehyde;

## CLASSIFICATION



## PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE White crystalline odorless solid

MELTING POINT 255 - 259 C

BOILING POINT 276 C at 30 mmHg

SPECIFIC GRAVITY 1.396

SOLUBILITY IN WATER

pH

VAPOR DENSITY

AUTOIGNITION 490 C

NFPA RATINGS

REFRACTIVE INDEX

FLASH POINT 240 C

STABILITY Stable under ordinary conditions

## GENERAL DESCRIPTION & APPLICATIONS

Pentaerythritol (also called Tetramethylolmethane) is a polyalcohol compound containing 4 esterifiable hydroxyl groups which characterize polyol functions. Almost infinite esters are available from polyol. Polyol is essential in polyurethane production. Pentaerythritol is a white crystalline ODORLESS solid; moderately soluble in cold water, freely soluble in hot water; melting point 260 C and boiling point 276 C at 30 mm Hg. It is prepared from aldol condensations of formaldehyde and acetaldehyde, and followed Cannizzaro reaction. It is used to make explosives such as pentaerythritol tetranitrate (PETN). PETN, also known as penthrite, is a white crystalline compound; melting point 139 C; explodes at 205-215C; soluble in acetone, insoluble in water. Pentolite is a highly reactive explosive composed of pentaerythritol and trinitrotoluene. Pentaerythritol is a basic material for polymer production. It is used to make alkyd resins, other coating compounds. Pentacite obtained from pentaerythritol is an alkyd resin used in coatings and printing inks. Pentaerythritol is used in the preparation of polyvinyl chloride stabilizers, antioxidants, varnishes, paints, adhesives, and other infinite derivatives. There are commercially three grades of pentaerythritol: mono (98 percent, with di- and tripentaerythritol impurities), technical (88 percent, with 8 to 10 percent dipentaerythritol, balance tri-) and nitration (99 percent, with di- and tripentaerythritol impurities).

## SALES SPECIFICATION

### MONOPENTAERYTHRITOL GRADE

APPEARANCE White crystalline odorless solid

MONOPENTAERYTHRITOL 98.0% min

DI & TRIPENTAERYTHRITOL	2.0% max
HYDROXYL GROUPS	48.5% min
MOISTURE	0.5% max
ASH	0.03% max
PHTHALIC COLOR	2 max (Gardner)
MELTING POINT	253 C min
TECHNICAL GRADE	
APPEARANCE	WHITE CRYSTALLINE ODORLESS SOLID
MONOPENTAERYTHRITOL	88.0% min
DIPENTAERYTHRITOL	12.0% max
HYDROXYL GROUPS	47.0% min
MOISTURE	0.5% max
ASH	0.03% max
PHTHALIC COLOR	2 max (Gardner)
TRANSPORTATION	
PACKING	20kgs, 500kgs in Bag
HAZARD CLASS	
UN NO.	
REMARKS	