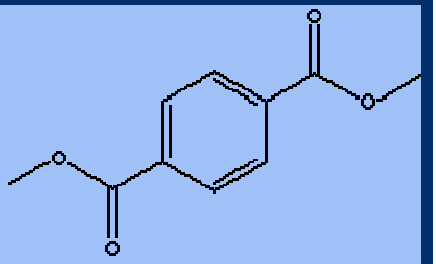
DIMETHYL TEREPHTHALATE

PRODUCT IDENTIFICATION

CAS NO.	120-61-6
EINECS NO.	204-411-8
FORMULA	$C_6H_4(COOCH_3)_2$
MOL WT.	194.19
H.S. CODE	2917.37
DERIVATION	
TOXICITY	Oral rat LD50: > 3200 mg/kg
SYNONYMS	Terephthalic acid methyl ester; DMT; Methyl Terephthalate; Dimethyl-p-phthalate; D.M.T.; 1,4-Benzenedicarboxylic acid, dimethyl ester; Di-Me terephthalate; Dimethylester kyseliny tereftalove; Methyl 4-carbomethoxybenzoate; Methyl-p-(methoxycarbonyl)benzoate; Dimethyl 4-phthalate; Dimethyl ester of 1,4-Benzenedicarboxylic acid; Dimethyl-1,4-benzenedicarboxylate;



CLASSIFICATION

GENERAL DESCRIPTION

Phthalic Acid, also called Benzenedicarboxylic Acid with formula $C_6H_4(COOH)_2$, is the name of any of three isomers. The ortho form (1,2-benzenecarboxylic acid) is called simply phthalic acid. It is a white crystals decomposing at 191°C and slightly soluble in water and ether. This compound is mainly produced and marketed in the form of its anhydride produced by the oxidation of orthoxylene and naphthalene. Its wide application is based on the ortho related carboxylic acid groups as their dehydration is highly reactive with broad processing conditions to produce various downstream products. It is used to make simple esters widely used as plasticizers. It is used as in making unsaturated polyester resins, alkyd resins, polyester polyols, dyes and pigments, halogenated anhydrides, polyetherimide resins, isatoic anhydride and insect repellents. The meta form is isophthalic acid (1,3-benzenecarboxylic acid). It is a white crystals subliming at 345°C slightly soluble in water, alcohol and acetic acid (insoluble in benzene). It is obtained by oxidizing meta-xylene with chromic acid, or by fusing potassium meta-sulphobenzoate, or meta-brombenzoate with potassium formate. IPA has excellent performance characteristics in coatings including excellent hardness, corrosion and stain resistance, hydrolytic stability of coatings and gel coats, excellent thermal stability and low resin color. It is a key ingredient in FRP markets for such products as marine, automotive, and corrosion resistant pipes and tanks. Polyesters containing isophthalic acid are also used extensively in industrial coatings applications for home appliances, automobiles, aluminum siding, and metal office furniture. It used as an intermediate for polyesters, polyurethane resins, plasticizers. The para form, known as terephthalic acid (1,4-benzenecarboxylic acid) is a combustible white powder insoluble in water, alcohol and ether; (soluble in alkalies), sublimes at 300°C. It can be produced by oxidizing caraway oil, a mixture of cymene and cuminol or by oxidizing para-diderivatives of benzene with chromic acid. TPA has been used mainly as a raw material of polyester fiber but lately it has been exploited for various uses such as non-fiber field, PET-bottle, PET-film and engineering plastics and as poultry feed additives. Phthalic acid derivatives are also widely used to make dyes, medicine, and synthetic perfumes, pesticides, and other chemical compounds.

Dimethyl terephthalate (DMT) is an ester of terephthalic acid and methanol. DMT is a primary ingredient used in the manufacture of polyesters and industrial plastics. It is a building block for an

assortment of products--from X-ray and video films to polyester fibers and electrical capacitors. It also is found in many automotive components, such as reinforcing beams, bumpers, windshield wiper blades, electrical systems, and hubcaps. DMT is an ideal choice for virtually any industrial plastics application. This compound is used as an intermediate of herbicides and a component of paints, ink and adhesives.

PHYSICAL AND CHEMICAL PROPERTIES	
PHYSICAL STATE	White Flakes
MELTING POINT	140 - 142 C
BOILING POINT	288 C
SPECIFIC GRAVITY	1.2
SOLUBILITY IN WATER	slightly soluble (soluble in hot alcohol and ether)
pH	
VAPOR DENSITY	5.5
AUTOIGNITION	518 C (subliming at > 300 C)
NFPA RATINGS	Health:1 Flammability:1 Reactivity:0
REFRACTIVE INDEX	
FLASH POINT	153 C
STABILITY	Stable under ordinary conditions.

APPLICATIONS
Polyester Film (Audio/Video Tape,X-ray Film,Photo Film), Polyester Fiber, Pet Bottle, Polyester Adhesive, Engineering Plastics.

SALES SPECIFICATION	
APPEARANCE	White Flakes
APPEARANCE OF MELT	Clear and free from suspended matter
MELT COLOR, APHA	15max (Initial), 25max (Final)
ACID NUMBER	0.025 max ((mg KOH/g)
MELTING POINT	140 C
FREE ACIDITY (AS TPA)	0.01% max
IRON	1ppm max

TRANSPORTATION	
PACKING	500kg, 700kg, 900kg, 1000kg in bag
HAZARD CLASS	Not regulated
UN NO.	

OTHER INFORMATION
Hazard Symbols: n/a, Risk Phrases: n/a, Safety Phrases: 24/25