

ISOPHTHALIC ACID

GENERAL

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-benzenedicarboxylic 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-benzenedicarboxylic 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-bromobenzoate with potassium formate. IPA has excellent performance characteristics including excellent hardness, corrosion and stain resistance, hydrolytic stability of coatings and gel coats, excellent thermal stability and low resin color in coatings industry. 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-benzenedicarboxylic acid) is a combustible white powder insoluble in water, alcohol and ether; (soluble in alkalis), sublimates at 300°C. It can be produced by oxidizing caraway oil, a mixture of cymene and cuminal 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.

PHYSICAL PROPERTY & DESCRIPTION	CAS NO.	STRUCTURE
Appearance And Odor: Crystals. White.Ph: Not Determined. Vapor Pressure: Not Determined. Vapor Density: Not Determined. Boiling Point: 212°F(100°C) (Sublimes) Melting Point: 656°F(347°C) Solubility In Water: Not Determined. Specific Gravity (Water=1): 1.54	121-91-5	
	SYNONYM	
	IPA	
	Mol Wt.	
	$C_8H_6O_4$ 166.13	

PRECAUTION IN HANDLING

Take appropriate measures to prevent static discharges, which may include thorough electrical interconnecting, grounding of equipment, and/or conveyance under inert gas.

APPLICATION

Isophthalic acid is a key ingredient in FRP markets for such products as marine, automotive, and corrosion resistant pipes and tanks. Polyesters containing PIA are also used extensively in industrial coatings applications for home appliances, automobiles, aluminum siding, and metal office furniture.

SPECIFICATION

Acid Number	mgKOH/g	675±2
Moisture	wt%	0.08 max
Isophthalic Acid	wt%	99.8 min
3-CBA	ppm	5 max
M-Toluic Acid	ppm	50 max
Ash	ppm	3 max
Total Metal	ppm	3 max
Co	ppm	0.2 max
Mn	ppm	0.2 max
Fe	ppm	0.2 max

OTHER INFORMATION