

Common Name: **PHTHALIC ANHYDRIDE**

Synonyms: 1,2-Benzendicarboxylic Anhydride; 1,3-Dioxophthalon; 1,3-Isobenzofurandione

CAS No: 85-44-9

Molecular Formula: C<sub>8</sub>H<sub>4</sub>O<sub>3</sub>

RTK Substance No: 1535

Description: Colorless to white, crystalline or needle-shaped solid, or a pale liquid when in *molten form*, with a strong, choking odor

### HAZARD DATA

Hazard Rating	Firefighting	Reactivity
<p><b>3 - Health</b></p> <p><b>1 - Fire</b></p> <p><b>0 - Reactivity</b></p> <p><b>DOT#:</b> UN 2214</p> <p><b>ERG Guide #:</b> 156</p> <p><b>Hazard Class:</b> 8 (Corrosive)</p>	<p><b>Phthalic Anhydride</b> may burn, but does not readily ignite.</p> <p>Use dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam as extinguishing agents.</p> <p>DO NOT use solid streams of water.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE including <i>Phthalic Acid</i>.</p> <p>Use water spray to keep fire-exposed containers cool.</p> <p><b>Phthalic Anhydride</b> may form an ignitable dust/air mixture in closed tanks or containers.</p>	<p><b>Phthalic Anhydride</b> reacts slowly with WATER to form <i>Phthalic Acid</i> and heat. The reaction may be violent.</p> <p><b>Phthalic Anhydride</b> reacts violently on heating with COPPER OXIDE or SODIUM NITRITE causing an explosion hazard.</p> <p><b>Phthalic Anhydride</b> is not compatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC); STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE); REDUCING AGENTS (such as LITHIUM, SODIUM, ALUMINUM and their HYDRIDES); AMINES; ALCOHOLS; and AMMONIA.</p> <p><b>Phthalic Anhydride</b> is corrosive to metals in the presence of WATER.</p>

### SPILL/LEAKS

**Isolation Distance:**

Spills: 25 meters (75 feet)

Fire: 800 meters (1/2 mile)

Slightly moisten spilled material first or use a HEPA-filter vacuum for clean-up and place into sealed containers for disposal.

For *molten (liquid) Phthalic Anhydride*, cover with dry lime, sand or soda ash and place into sealed containers for disposal.

Neutralize water spill with crushed limestone, soda ash or sodium bicarbonate.

### PHYSICAL PROPERTIES

<b>Odor Threshold:</b>	0.053 ppm
<b>Flash Point:</b>	305°F (152°C)
<b>LEL:</b>	1.7%
<b>UEL:</b>	10.5%
<b>Auto Ignition Temp:</b>	1,058°F (570°C)
<b>Vapor Density:</b>	5.1 (air = 1)
<b>Vapor Pressure:</b>	0.0002 mm Hg at 68°F (20°C)
<b>Specific Gravity:</b>	1.5 (flake) 1.2 (molten) (water = 1)
<b>Water Solubility:</b>	Slightly soluble (decomposes)
<b>Boiling Point:</b>	563°F (295°C)
<b>Melting Point:</b>	267°F (131°C)
<b>Ionization Potential:</b>	10 eV
<b>Molecular Weight:</b>	148.1

### EXPOSURE LIMITS

**OSHA:** 12 mg/m<sup>3</sup> (2 ppm), 8-hr TWA

**NIOSH:** 6 mg/m<sup>3</sup> (1 ppm), 10-hr TWA

**ACGIH:** 6 mg/m<sup>3</sup> (1 ppm), 8-hr TWA

**IDLH:** 60 mg/m<sup>3</sup>

The Protective Action Criteria values are:

PAC-1 = 12 mg/m<sup>3</sup> PAC-2 = 40 mg/m<sup>3</sup>

PAC-3 = 60 mg/m<sup>3</sup>

### PROTECTIVE EQUIPMENT

<b>Gloves:</b>	SilverShield®/4H® (>4-hr breakthrough)
<b>Coveralls:</b>	Tyvek® (for <i>solid Phthalic Anhydride</i> ) and Tychem® CPF3, BR, Responder® and TK; and Trelchem HPS and VPS (>8-hr breakthrough for <i>liquid Anhydrides, alicyclic</i> )
<b>Respirator:</b>	>6 mg/m <sup>3</sup> - full facepiece APR with <i>Organic vapor and High efficiency particulate</i> cartridges >12 mg/m <sup>3</sup> - SCBA

### HEALTH EFFECTS

**Eyes:** Irritation and burns

**Skin:** Irritation and burns

**Inhalation:** Nose and throat irritation with coughing and wheezing

### FIRST AID AND DECONTAMINATION

**Remove** the person from exposure.

**Flush** eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention.

**Quickly** remove contaminated clothing and wash contaminated skin with large amounts of soap and water. Seek medical attention.

**Begin** artificial respiration if breathing has stopped and CPR if necessary.

**Transfer** promptly to a medical facility.