

# PHTHALIC ANHYDRIDE

**0315**  
May 2003

**CAS No: 85-44-9**  
RTECS No: TI3150000  
EC No: 607-009-00-4

1,2-Benzenedicarboxylic acid anhydride  
Phthalic acid anhydride  
1,3-Isobenzofurandione  
 $C_8H_4O_3$  /  $C_6H_4(CO)_2O$   
Molecular mass: 148.1

| TYPES OF HAZARD/ EXPOSURE | ACUTE HAZARDS/SYMPTOMS                                     | PREVENTION   | FIRST AID/FIRE FIGHTING                        |
|---------------------------|--|--|--|
| <b>FIRE</b>               | Combustible.   | NO open flames.  | Water spray, foam, dry powder, carbon dioxide. |
| <b>EXPLOSION</b>          | Finely dispersed particles form explosive mixtures in air. | Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting. |  |

| EXPOSURE          |                               | PREVENT DISPERSION OF DUST!<br>AVOID ALL CONTACT!                          |   |
|-------------------|-------------------------------|--|---|
| <b>Inhalation</b> | Cough. Sore throat. Wheezing. | Local exhaust or breathing protection.                                     | Fresh air, rest. Half-upright position. Refer for medical attention.  |
| <b>Skin</b>       | Redness. Pain.                | Protective gloves. Protective clothing.                                    | Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.                 |
| <b>Eyes</b>       | Redness. Pain.                | Safety goggles or eye protection in combination with breathing protection. | First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. |
| <b>Ingestion</b>  | Abdominal pain.               | Do not eat, drink, or smoke during work.                                   | Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Refer for medical attention.                        |

| SPILLAGE DISPOSAL  | PACKAGING & LABELLING  |
|--|--|
| Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: chemical protection suit including self-contained breathing apparatus. | Xn Symbol<br>R: 22-37/38-41-42/43<br>S: (2-)23-24/25-26-37/39-46<br>Do not transport with food and feedstuffs. |

| EMERGENCY RESPONSE       | SAFE STORAGE   |
|--------------------------|--|
| NFPA Code: H 3; F 1; R 0 | Separated from combustible and reducing substances, strong oxidants, strong bases, strong acids, food and feedstuffs. See Chemical Dangers. Ventilation along the floor. Dry. Well closed. |

## IMPORTANT DATA

**Physical State; Appearance**

WHITE LUSTROUS CRYSTALS, WITH CHARACTERISTIC ODOUR.

**Physical dangers**

Dust explosion possible if in powder or granular form, mixed with air.

**Chemical dangers**

The substance decomposes on contact with hot water producing phthalic acid. Reacts with strong oxidants, strong acids, strong bases and reducing agents. Reacts violently on heating with copper oxide or sodium nitrite, causing explosion hazard. Attacks many metals in the presence of water.

**Occupational exposure limits**

TLV: 1 ppm; SEN; A4 (not classifiable as a human carcinogen); (ACGIH 2003).  
MAK: IIb (not established but data is available); sensitization of respiratory tract (Sa); (DFG 2002).

**Routes of exposure**

The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

**Inhalation risk**

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

**Effects of short-term exposure**

The substance is severely irritating to the eyes, the skin and the respiratory tract.

**Effects of long-term or repeated exposure**

Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma (see Notes).

## PHYSICAL PROPERTIES

Boiling point: 284/C (sublimes)  
Melting point: 131/C  
Density: 1.53 g/cm<sup>3</sup>  
Solubility in water: slow reaction  
Vapour pressure, Pa at 20/C: <0.3

Relative vapour density (air = 1): 5.1  
Flash point: 152/C c.c.  
Auto-ignition temperature: 570/C  
Explosive limits, vol% in air: 1.7-10.4  
Octanol/water partition coefficient as log Pow: 1.6

## ENVIRONMENTAL DATA

## NOTES

The substance may be transported in molten state.

The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

Anyone who has shown symptoms of asthma due to this substance should avoid all further contact with this substance.

For materials containing more than 0.05% of maleic anhydride the UN number is 2214, hazard class 8, packaging group III and the Transport Emergency Card is TEC (R)-80S2214.

Do NOT take working clothes home.

Card has been partly updated in October 2005. See section Occupational Exposure Limits.

## ADDITIONAL INFORMATION

## LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information