


Thirumalai Chemicals Limited
MATERIAL SAFETY DATA SHEET

Product Name: PHTHALIC ANHYDRIDE

Revision Date: 11.11.2009

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1. Manufacturer and Substance Identification

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Chemical Name : Phthalic Anhydride
 Molecular Formula : C₈H₄O₃
 Molecular Weight : 148.1
 Synonyms : Phthalic Acid Anhydride, 1,3-Isobenzofurandione,
 1,2 Benzene Carboxylic Acid Anhydride

2. Composition / Information on ingredients

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Content (W/W)</u>	<u>EINECS</u>
Phthalic anhydride	85-44-9	More than 99.8 %	201-607-5
Maleic anhydride	108-31-6	Less than 0.05 %	203-571-6

3. Hazard Identification

Hazard Symbol : Xi - Irritant
 R-Phrases : R22, R37/38, R41, R42/43
 S-Phrases : S2, S23, S24/25, S26, S37/39, S46

4. First Aid Measures

General advice : Remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

If inhaled : Remove the affected individual to fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin : Remove contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eye : In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed : Rinse mouth and then drink plenty of water. Never induce vomiting or give anything by mouth. Immediate medical attention required.

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5. Fire Fighting Measures

- Flash Point : 151° C
Auto ignition : 580° C
Lower Explosion Limit : 1.7 % (V)
Upper explosion Limit : 10.5 % (V)
Special Hazards : Combustible material. May form flammable/explosive Vapour-air mixture.
Extinguishing agents : Carbon dioxide (CO₂), Foam, dry powder, Sand for small fires. For larger fires use water jet or alcohol resistant foam.
Protective equipment : In case of fire, wear self contained breathing apparatus and chemical protective suit.

6. Accidental Release Measures

- Personal precaution : Avoid Inhalation. Use personal protective equipment. Ensure adequate ventilation.
Environmental precautions : Remove all sources of ignition. Avoid discharge into environment
Methods for cleaning up : Use mechanical handling equipment. Avoid raising dust. Flush with plenty of water. Dispose of in compliance with local and national regulations.

7. Handling and Storage

Handling

- General advice : Ensure thorough ventilation of stores and work areas. Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking
Protection against fire and explosion : Avoid dust formation. Dust can form an explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Electrical devices must meet the specified temperature class.

Storage

- General advice : Protect against moisture. Containers should be stored tightly sealed in a dry place.

8. Exposure Controls / Personal Protection

- Engineering Controls : Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

	<u>ACGIH</u>	<u>NIOSH</u>	<u>OSHA</u>
Phthalic Anhydride	TWA : 1ppm	TWA : 1 ppm (6mg/m3)	TWA : 2 ppm (12 mg/m3)

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Personal Protective Equipment and hygienic measures:

Respiratory	:	Self contained breathing apparatus
Eye	:	Closely fitted Safety goggles.
Hand	:	Impervious Gloves
Skin and body	:	Approved work boots, protective clothing
Hygiene measures	:	Keep away from foodstuffs. Wash hands during break and at the end of the work
Other devices	:	Maintain eye wash facility in work area

9. Physical and Chemical Properties

Form	:	Flakes
Odour	:	Mild characteristic
Colour	:	White
Melting Point °C	:	131
Boiling Point °C	:	284 (sublimes)
Water Solubility g/l at 25 °C	:	6.2
Density g/ml at 20 °C	:	1.527
Vapor Density (air = 1)	:	5.1
Vapor Pressure mm Hg at 25 °C:	:	0.00052
Reactivity	:	hydrolyses in water
Flash Point °C	:	152 (closed cup)

10. Stability and Reactivity

Substances to avoid	:	Alkalies, Water, and Alcohols, Amine compounds
Hazardous reactions	:	Reacts with water. Reacts with certain metals (eg: iron). Dust explosion hazard.
Decomposition products	:	Hazardous decomposition products: Phthalic acid

11. Toxicological Information

Acute toxicity (lethal doses) (Literature value)

LD50/oral/ rat	:	4.0 g/kg
LD50/oral/mouse	:	2 g/kg

12. Ecological Information

Environmental fate and transport

Biodegradation

Test method	:	OECD 301C; ISO 9408; 92/69/EEC, C.4-F(aerobic), activated sludge
Method of analysis	:	BOD of the ThOD
Degree of elimination	:	85 % (14 d)
Evaluation	:	Readily biodegradable (according to OECD criteria).

Environmental toxicity : Acute and prolonged toxicity to fish: OPPTS 820.1075 (EPA-Guideline) static Sunfish, bluegill/LC50 (96 h): > 1,000 mg/l

Toxicity to microorganisms : OECD Guideline 209 activated sludge/EC20 (0.5 h): > 1,000 mg/l

Other ecotoxicological advice: Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low Concentrations. Do not release untreated into natural waters.

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13. Disposal Consideration

Disposal method

Product : To be performed as per local regulations.
Contaminated packaging : Can be land filled or incinerated, in compliance with local regulations

14. Transport Information

Road transport ADR/RID
Maritime transport IMDG } Not Classified as a dangerous good under transport regulations
Air transport ICAO/IATA

15. Regulatory Information

EPA Regulations : Reportable Quantity: 5000 Lbs
NFPA 704 Rating : Health Hazard Rating: 3
Fire Hazard Rating: 1
Reactivity Hazard Rating: 0
NIOSH Guidelines : TWA : 6 mg/m³
IDLH : 60 mg/m³
Conversion: 1 PPM = 6.06 mg/m³@ 25°C & 1ATM
OSHA Regulations : TWA : 12 mg/m³ TWA Vacated: 6 mg/m³
Health Risks : Irritant
Responsibility of the receiver to have the knowledge of the local and national regulations.

16. Other Information

The information provided in this Safety Data Sheet is given in good faith and is correct to the best of our knowledge and information at the date of publication. It is designed only as guidance for safe handling, storage, transportation, use and disposal. No warranty is expressed or implied.

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