

MATERIAL SAFETY DATA SHEET

PHTHALIC ANHYDRIDE

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION			
	1.1	Trade Name	PHTHALIC ANHYDRIDE (Containing <0.050% Maleic Anhydride)
	1.2	Manufacturer/Supplier	IG Petrochemicals Limited
	1.3	Address	401/404 Raheja Centre, Nariman Point, Mumbai - 400 021
	1.4	Phone No.	0091 22 30286100
	1.5	Fax No.	0091 22 22040747
	1.6	Emergency Phone No.	0091 22 39289100
2 COMPOSITION/INFORMATION ON THE COMPONENTS			
	2.1	Common Synonyms	PA, PAN
	2.2	Formal/Name	1,2, Benzene Dicarboxylic Acid Anhydride
	2.3	Chemical Family	Aromatic Acid Anhydride
	2.4	CAS No.	85 - 44.9
	2.5	DOT ID No.	2214
	2.6	Chemical Formula	C ₆ H ₄ (CO) ₂ O
	2.7	Physical State (As shipped)	Solid Flakes
	2.8	Colour	White to pale yellow
	2.9	Odor	Characteristic choking odour
3 HAZARDS AND CLASSIFICATION			
	3.1	Hazard Assessment Code	II or A-X-Y (See Hazard Assessment Handbook)
	3.2	Fire	Combustible Extinguish with DCP, CO ₂ or water fog.

	3.3	Exposure	
	3.3.1	Dust/Vapour	<p>Irritating to eyes, nose and throat, corneal damage possible.</p> <p>If inhaled-causes coughing, sneezing. May cause pulmonary sensitisation and may cause bronchial spasms in asthma.</p> <p>Skin contact causes irritation or allergic sensitisation. Prolonged exposure leads to dermatitis.</p>
	3.3.2	Liquid/Solid	<p>Will burn skin or eyes.</p> <p>Harmful if swallowed - irritation of mouth, throat and digestive tract.</p>
	3.4	Classification	
	3.4.1	Category	Rating
		Fire	1
		Health	3
		Vapour irritant	2
		Liquid or Solid irritant	3
		Reactivity	2 moderate
		Other Chemicals	3
		Self Reaction	0
		Water	1
	3.4.2	NFPA Hazard Classification	
		Category	Classification
		Health Hazard (Blue)	2
		Flammability (Red)	1
		Reactivity (Yellow)	0
	3.5	Fire Hazard Characteristics	
	3.5.1	Flash Point	165°C O.C., 151°C CC.
	3.5.2	Flammable limits	1.7% LEL, 10.5% UEL
	3.6	Dust Explosion Data	<p>Dust cloud may be capable of ignition and propagating flame. Min. explosion concentration 30 g/m⁽³⁾. Minimum ignition energy 15 mJ (0.015 J). Minimum ignition temperature 650°C. Maximum</p>

			explosion pressure 6.6 bar. Maximum rate of pressure rise 613 bar/spec. KST value 166 bar/m/s.
4 FIRST AID			
	4.1	Eyes	Flood the eyes with plenty of water for 15 minutes holding the eye open. Obtain medical attention.
	4.2	Skin	Wash skin with soap and water. Obtain medical attention if blisters or redness persists. Contaminated clothing should be washed or dry cleaned before reuse.
	4.3	Ingestion	Wash out mouth with water. Obtain medical help
	4.4	Inhalation	Remove from exposure. Obtain medical help.
5 FIRE FIGHTING MEASURES			
	5.1	Fire fighting general information.	Full protective clothing and self contained breathing set. Vapors can travel to a source of ignition and flash back. Dust can be an explosion hazard when exposed to heat or flame. Reacts with water to form explosive hydrogen gas. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated or if contaminated with water.
	5.2	Extinguishing Media	Do NOT get water inside containers. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.
6 ACCIDENTAL RELEASE MEASURES			
	6.1	General Information:	Use proper personal protective equipment as indicated in Section 8.
	6.2	Spills/Leaks	Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Do not get water inside containers.

7 HANDLING & STORAGE					
	7.1	Handling	Protect against physical damage. Isolate from any source of heat or ignition. Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions if the dust explosion risk is significant. Empty only into inert or non-flammable atmosphere. Emptying contents into a non-inert atmosphere where flammable vapors may be present, could cause a flash fire or explosion due to electrostatic discharge.		
	7.2	Storage	Dry, well ventilated.		
8 EXPOSURE CONTROLS, PERSONAL PROTECTION					
	8.1	Engineering Controls	Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.		
	8.2				
		Exposure limits	ACGIH	NIOSH	OSHA - Final PELs
		Phthalic Anhydride	1 ppm TWA	6 mg/m ³ TWA; 1 ppm TWA 60 mg/m ³ IDLH	2 ppm TWA; 12 mg/m ³ TWA
	8.3	Personal Protection			
	8.3.1	Body	Wear dust proof overall with hood and rubber boots.		
	8.3.2	Hand	Gauntlet type rubber or leather gloves or PVC gloves.		
	8.3.3	Eyes	Chemical Goggles or face shield.		
	8.3.4	Respirator	Dust respirator, Bureau of Mines Organic Vapour respirator (Type AB) for vapour.		
	8.3.5	For fire fighting	Full protective clothing and self contained breathing set.		
9 PHYSICAL & CHEMICAL PROPERTIES					
		Molecular Weight	148.12		
		Boiling Point at 1 atm	284.6°C Subl.		
		Melting Point	131°C		
		Critical Temperature/	Not pertinent		

		pressure	
		Liquid Surface Tension	35.5 dryness/cm
		Specific gravity	1.215@ 135°C liquid
			1.53 @ 20°C Solid
		Cp/Cv (Vapour)	1.0880 Cal/g
		Latent Heat	105 Cal/g
		Heat of combustion	5263 Cal/g
		Heat of solution	70.8 Cal/g

10 STABILITY AND REACTIVITY

	10.1	Chemical Stability	Stable under normal temperatures and pressures.
	10.2	Conditions to Avoid	Incompatible materials, moisture.
	10.3	Incompatibilities with Other Materials	Strong acids, strong bases, strong oxidizing agents, amines, ammonia, coatings, plastics, rubber, water.
	10.4	Hazardous Decomposition Products	Carbon monoxide, carbon dioxide, Forms acid when in contact with hot water.
	10.5	Hazardous Polymerization	Has not been reported.

11 TOXICOLOGICAL INFORMATION

	11.1	Toxicity	
	11.1.1	Threshold Limit Value	1 ppm
	11.1.2	Short Term inhalation limit	4 ppm for 15 mins (as per F.A. 1948).
	11.1.3	Toxicity by ingestion	Grade 2, Oral LD50 - 4020 mg/Kg (Rat)
	11.2	Odor Threshold	0.32-0.72 mgm/m ⁽³⁾
	11.3	IDLH Value	10000 pm

12 ECOLOGICAL INFORMATION

	12.1	BOD	106%, 5 days
	12.2	Water Pollution	
	12.2.1	Human Toxicity	2
	12.2.2	Aquatic Toxicity	2

The products of degradation are less toxic than the product itself.

13 DISPOSAL CONSIDERATION

Waste must be disposed in accordance with federal, state and local environmental control regulations.

14 TRANSPORT/SHIPPING INFORMATION

14.1	DOT Classification	Class 8 : Corrosive material
14.2	Identification	Phthalic Anhydride PG: III
14.3	Grades of purity	Flake - Commercial 99.8%
14.4	Storage Temperature	Ambient (Solid)
14.5	Inert Atmosphere	Not required
14.6	Ventilation	Open

15 REGULATORY INFORMATION

European Labeling in Accordance with EC Directives

15.1	Hazard Symbols	Xn
15.2	Risk Phrases	R 22, 37/38, 41 & 42/43 Irritating to eyes, respiratory system and skin
15.3	Safety Phrases	WGK (Water Danger/Protection) CAS# 85-44-9: 0
15.4	DSCL (EEC)	R22- Harmful if swallowed. R26- Very toxic by inhalation. R38- Irritating to skin. R41- Risk of serious damage to eyes. S1/2- Keep locked up and out of the reach of children.
		S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of [***] S36/37- Wear suitable protective clothing and gloves. S39- Wear eye/face protection.

			S45- In case of accident or if you feel unwell
16 OTHER INFORMATION			
16.1	Label Hazard Warning	DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.	
16.2	Label Precautions	Do not breathe dust. Keep container closed. Use only with adequate ventilation. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid dust cloud in presence of an ignition source.	
16.3	Label First Aid	If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.	
16.4	Product Use	Commercial use.	
16.5	Created on 26.07.2007		
16.6	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall IG Petrochemicals Limited be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if IG Petrochemicals Limited has been advised of the possibility of such damages.		