

Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	1,4-PHENYLENE DIISOCYANATE
Product Number	262242
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
1,4-PHENYLENE DIISOCYANATE	104-49-4	203-207-6	None
Formula	C ₈ H ₄ N ₂ O ₂		
Molecular Weight	160.13 AMU		
Synonyms	1,4-Diisocyanatobenzene * Isocyanic acid, p-phenylene ester (6CI,7CI,8CI) * p-Phenylene diisocyanate * 1,4-Phenylene diisocyanate * p-Phenylene isocyanate		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Harmful by inhalation, in contact with skin and if swallowed.
Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing.

STORAGE

Conditions of Storage: Keep tightly closed. Store under nitrogen.

SPECIAL REQUIREMENTS: Air and moisture sensitive. Handle and store under inert gas.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance

Physical State: Solid.

Property

Value

At Temperature or Pressure

pH	N/A	
BP/BP Range	260 °C	760 mmHg
MP/MP Range	96.0 - 99.0 °C	
Flash Point	113 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	< 0.01 mmHg	20 °C
SG/Density	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May decompose on exposure to moist air or water.

Conditions to Avoid: Air.

Materials to Avoid: Amines, Strong oxidizing agents, Strong acids, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen cyanide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: CZ6150000

IRRITATION DATA

Skin

Rabbit

500 mg

Remarks: Severe irritation effect

SENSITIZATION

Respiratory: May cause allergic respiratory reaction.

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: Harmful if absorbed through skin.
Eye Contact: Causes eye irritation. Lachrymator.
Inhalation: Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.

IMDG

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: Xn
Harmful.
R-PHRASES: 20/21/22-36/37/38-42
Harmful by inhalation, in contact with skin and if swallowed.
Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation.
S-PHRASES: 22-26-36/37
Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves.

SWITZERLAND

SWISS POISON CLASS: 1

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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