Material Safety Data Sheet

Diphenyl Oxide

Section 1 - Product Identification

Synonyms : Oxydibenzene, Diphenyl ether, 1,1'-Oxydibenzene

Molecular Weight : 170.21 g/mol

Chemical Formula : $C_{12}H_{10}O$

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Recommended use of the chemical and restrictions on use:

Laboratory Chemicals, Manufacturing of substances.

Section 2 – Composition/Information on Ingredients

Chemical Name	EC/CAS No	Purity, %
Diphenyl oxide	202-981-2/101-84-8	<= 100

Section 3 – Hazards Identification

3.1 Classification of the substance or mixture

Eye irritation (Category 2), H319

Chronic aquatic toxicity (Category 2), H411

3.2 Label elements

Hazard statement(s)

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

P264 Wash skin thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves/ eye protection/ face protection.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P391 Collect spillage.

Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

3.3 Other hazards

None

Section 4 – First-Aid Measures

4.1. Description of first aid mesaures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Most important known symptoms and effects are described in the labelling (section 3.2) and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

N.A.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Specific hazards arising from the chemical

Carbon Oxides

5.3. Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4. Further Information

Use water spray to cool unopened containers.

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

Component	CAS-No	Value	Control	Basis
Diphenyl Oxide	101-84-8	PEL (long term)	1ppm, 7mg/m^3	Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure Limits of Toxic Substances
		PEL (short term)	2ppm, 14mg/m^3	Singapore. Workplace Safety and Health Act - First Schedule

				Permissible Exposure Limits of Toxic Substances

8.2. Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full/Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Impervious clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle r (US) or type ABEKP2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.4 Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance : White crystalline

Odour : Aromatic

Odour threshold : N.A.

pH @ 20°C : No data available

Melting point : 26°C – lit.

Boiling point : 258°C – lit.

Flash point : 115°C – lit.

Evaporation rate : N.A.

Flammability : N.A.

Upper/lower flammability or explosive limits : UFL 1.5%, LFL 0.8% (V)

Vapour pressure : 760 mmHg at 257.9°C, < 1 mmHg at 20°C

Vapour density : N.A

Relative density : 1.073 g/mL at 25°C

Solubility in water : 18 mg/L at 25°C

Partition coefficient: n-octanol/water : N.A

Auto-ignition temperature : N.A

Decomposition temperature : N.A.

Viscosity : N.A.

Explosive properties: N.A.

Oxidizing properties: N.A.

Section 10 – Stability and Reactivity

10.1. Reactivity

N.A.

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

N.A.

10.4. Conditions to avoid:

N.A

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products formed under fire conditions – carbon oxides

In the event of fire, see section 5.

Other decomposition products – No data available.

Section 11 – Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 2.450 mg/kg (Diphenyl oxide), Remarks: Behavioral, Food intake (animal). Behavioral, Muscle weakness. Gastrointestinal: Other changes.

LD50 Oral - Rat - 3.370 mg/kg (Diphenyl oxide), LD50 Dermal - Rabbit - > 5.000 mg/kg (Diphenyl oxide), LD50 Dermal - Rabbit - > 7.940 mg/kg (Diphenyl oxide)

Remarks: Behavioral: Somnolence (general depressed activity). Lungs, Thorax, or Respiration: Acute pulmonary edema.

Skin corrosion/irritation

Skin – Rabbit (Diphenyl oxide), Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation

Eyes – Rabbit (Diphenyl oxide)

Result: Irritating to eyes.

Respiratory or skin sensitisation

No data available (Diphenyl oxide)

Germ cell mutagenicity

No data available (Diphenyl oxide)

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available (Diphenyl oxide)

Specific target organ toxicity - single exposure

No data available (Diphenyl oxide)

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available (Diphenyl oxide)

Additional Information

RTECS: KN8970000

prolonged or repeated exposure can cause:, Dermatitis, Liver injury may occur., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Diphenyl oxide)

Section 12 – Ecological Information

12.1.Toxicity

Toxicity to fish mortality NOEC - Cyprinodon variegatus (sheepshead minnow) – 1.0 mg/l – 96.0 h (Diphenyl oxide), LC50 - Pimephales promelas (fathead minnow) – 4.0 mg/l – 96.0 h (Diphenyl oxide), LC0 - Danio rerio (zebra fish) – 36.0 mg/l – 96.0 h (Diphenyl oxide), LC50 - Cyprinodon variegatus (sheepshead minnow) – 1.0 – 2.4 mg/l – 96.0h (Diphenyl oxide), LC50 - Leuciscus idus (Golden orfe) – 3.0 mg/l – 48.0 h (Diphenyl oxide).

Toxicity to daphnia and other aquatic invertebrates - EC50 - Daphnia magna (Water flea) – 1.7 mg/l - 48 h (Diphenyl oxide).

12.2. Persistence and degradability

Ratio BOD/ThBOD: 62%

12.3. Bioaccumulative potential

Bioaccumulation – Oncorhynchus mykiss (rainbow trout) – 7 days, 16 µg/L.

12.4. Mobility in soil

N.A

12.5. Other adverse effects

N.A

Section 13 – Disposal Considerations

13.1. Disposal methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging

Dispose of as unused product.

Section 14 – Transport Information

14.1. UN number : ADR/RID: 3077, IMDG: 3077, IATA-DGR: 3077

14.2. UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diphenyl ether)

14.3. Transport of hazard classes : ADR/RID: 9, IMDG: 9, IATA-DGR: 9

14.4. Packing group : ADR/RID: III, IMDG: III, IATA-DGR: III

14.5. Environmental hazards : ADR/RID: yes, IMDG Marine pollutant: no, IATA-DGR: yes

14.6. Special precautions for user : N.A

14.7. Incompatible materials: N.A

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations for the substance/mixture

N.A

Section 16 : Additional Information

16.1. Full text of H-Statements referred to

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

16.2. Disclaimer of Liability

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