

Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

1 - Product and Company Information

Product Name	3,3'-DIAMINOBENZIDINE TETRA- HYDROCHLORIDE
Product Number	D5637
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
3,3'-DIAMINOBENZIDINE TETRAHYDROCHLORIDE	7411-49-6	231-018-9	None
Formula	C12H14N4.4ClH		
Molecular Weight	360.12 AMU		
Synonyms	3,3'-Diaminobenzidine tetrahydrochloride * 3,3',4,4'-Tetraaminobiphenyl tetrahydrochloride		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Not hazardous according to Directive 67/548/EEC.

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 contact, immediately wash skin with soap and copious
amounts of water.

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: Water spray. 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

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

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: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Store with desiccant. Store at -20°C

SPECIAL REQUIREMENTS: Light sensitive. Hygroscopic.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Wear dust mask.

Hand Protection: Protective gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance

Physical State: Solid

Color: Tan

Form: Powder

Property

Value

At Temperature or Pressure

pH

N/A

BP/BP Range

N/A

MP/MP Range

300 °C

Flash Point

N/A

Flammability

N/A

Autoignition Temp	N/A
Oxidizing Properties	N/A
Explosive Properties	N/A
Explosion Limits	N/A
Vapor Pressure	N/A
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	Solubility in Water:Soluble.

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May darken on storage

Conditions to Avoid: Light. Moisture.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

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

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: DV8753000

ACUTE TOXICITY

LD50

Intraperitoneal

Mouse

330 MG/KG

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

CONDITIONS AGGRAVATED BY EXPOSURE

Although diaminobenzidine is structurally related to benzidine, there is no evidence for the carcinogenicity of diaminobenzidine.

CHRONIC EXPOSURE - CARCINOGEN

Rat

Route of Application: Oral

Exposure Time: 78W

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.

Mouse

Route of Application: Oral

Exposure Time: 78W

Result: Tumorigenic: Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors.

Mouse

Route of Application: Oral

Exposure Time: 78W

Result: Tumorigenic: Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Daphnia

Species: Daphnia magna

Time: 24 h

Value: 32 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

Non-hazardous for road transport.

IMDG

Non-hazardous for sea transport.

IATA

Non-hazardous for air transport.

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

S-PHRASES: 24/25 22

Avoid contact with skin and eyes. Do not breathe dust.

Not hazardous according to Directive 67/548/EEC.

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

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