

SAFETY DATA SHEET

Version 4.10
Revision Date 04/15/2016
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 3,3'-Diaminobenzidine tetrahydrochloride hydrate

Product Number : D5637

Brand : Sigma

Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada Co.
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +1 9058299500

Fax : +1 9058299292

Emergency Phone # (For both supplier and manufacturer) : +1-703-527-3887 (CHEMTREC)

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

WHMIS Classification

D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate eye irritant
		Mutagen

GHS Classification

Acute toxicity, Oral (Category 4)
Eye irritation (Category 2A)
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1B)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P281	Use personal protective equipment as required.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin Harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : $C_{12}H_{14}N_4 \cdot 4HCl \cdot xH_2O$
Molecular weight : 360.11 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Biphenyl-3,3',4,4'-tetrayltetraammonium tetrachloride			
868272-85-9	231-018-9	-	<=100%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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. 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

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

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

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Explosion data - sensitivity to mechanical impact

No data available

Explosion data - sensitivity to static discharge

No data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

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.

Conditions for safe storage

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

Recommended storage temperature -20 °C

Light sensitive. hygroscopic Store with desiccant. Handle under nitrogen, protect from moisture. Store under nitrogen.

Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

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 hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	powder
Colour	off-white

Safety data

pH	No data available
Melting point/freezing point	Melting point/range: 280 °C (536 °F)
Boiling point	No data available
Flash point	No data available
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	No data available
Density	No data available
Water solubility	soluble
Partition coefficient: n-octanol/water	log Pow: 1.232
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

Exposure to light may affect product quality. Exposure to moisture may affect product quality.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas

Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

No data available

Inhalation LC50

No data available

Dermal LD50

No data available

Other information on acute toxicity

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity**Teratogenicity**

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

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

Synergistic effects

No data available

Additional Information

RTECS: Not available

12. ECOLOGICAL INFORMATION**Toxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

PBT and vPvB assessment

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

WHMIS Classification

D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate eye irritant Mutagen

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

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