

## SAFETY DATA SHEET

Creation Date 07-April-2010

Revision Date 24-December-2021

Revision Number 7

### 1. Identification

**Product Name** 3,3'-Diaminobenzidine tetrahydrochloride hydrate, contains up to 10% water

**Cat No. :** AC112090000; AC112090010; AC112090050; AC112090250

**CAS-No** 868272-85-9  
**Synonyms** 3,3',4,4'-Biphenyltetramine tetrahydrochloride hydrate

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

##### **Importer/Distributor**

Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

##### **Manufacturer**

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

**Germ Cell Mutagenicity**  
**Carcinogenicity**

Category 2  
Category 1B

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Suspected of causing genetic defects  
May cause cancer



### Precautionary Statements

#### Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

#### Response

IF exposed or concerned: Get medical advice/attention

#### Storage

Store locked up

#### Disposal

Dispose of contents/container to an approved waste disposal plant

### Other Hazards

Harmful to aquatic life with long lasting effects

Light sensitive

## 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
3,3'-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	>95
3,3'-Diaminobenzidine tetrahydrochloride	7411-49-6	-

## 4. First-aid measures

### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

### Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

### Most important symptoms/effects Notes to Physician

None reasonably foreseeable.  
Treat symptomatically

## 5. Fire-fighting measures

### Suitable Extinguishing Media

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	No information available
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Hydrogen chloride gas.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

**Health**  
2

**Flammability**  
1

**Instability**  
1

**Physical hazards**  
N/A

**6. Accidental release measures**

**Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

**Environmental Precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up** Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

**7. Handling and storage**

**Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

**Storage.**

Protect from direct sunlight. Store under an inert atmosphere. Store in freezer. Incompatible Materials. Strong oxidizing agents.

**8. Exposure controls / personal protection**

**Exposure Guidelines**

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

<b>Eye Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Hand Protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.

<b>Glove material</b>	<b>Breakthrough time</b>	<b>Glove thickness</b>	<b>Glove comments</b>
Natural rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### **Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** Particulates filter conforming to EN 143

When RPE is used a face piece Fit Test should be conducted

#### **Environmental exposure controls**

Prevent product from entering drains.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## **9. Physical and chemical properties**

<b>Physical State</b>	Solid
<b>Appearance</b>	Grey to Dark brown
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	300 °C / 572 °F
<b>Boiling Point/Range</b>	No information available
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
Upper	No data available
Lower	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	No information available
<b>Solubility</b>	Soluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	Not applicable
<b>Molecular Formula</b>	C12 H14 N4 . 4 H Cl . x H2 O
<b>Molecular Weight</b>	360.11

## **10. Stability and reactivity**

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions. Moisture sensitive. Sensitivity to light.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to moist air or water. Exposure to light.
<b>Incompatible Materials</b>	Strong oxidizing agents
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> ), Hydrogen chloride gas
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

**Product Information** No acute toxicity information is available for this product

### **Component Information**

**Toxicologically Synergistic** No information available

### **Products**

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes, respiratory system and skin

**Sensitization** No information available

**Carcinogenicity** Limited evidence of a carcinogenic effect. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	Not listed	Not listed	Not listed	Not listed	Not listed
3,3-Diaminobenzidine tetrahydrochloride	7411-49-6	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** Animal experiments showed mutagenic and teratogenic effects

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### **Ecotoxicity**

Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
3,3-Diaminobenzidine tetrahydrochloride hydrate	Not listed	Not listed	Not listed	EC50: 32 mg/l (24h) Daphnia Magna

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

Component	log Pow
3,3-Diaminobenzidine tetrahydrochloride hydrate	1.232

## **13. Disposal considerations**

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## **14. Transport information**

<b>DOT</b>	Not regulated
<b>TDG</b>	Not regulated
<b>IATA</b>	Not regulated
<b>IMDG/IMO</b>	Not regulated

## **15. Regulatory information**

**All of the components in the product are on the following Inventory lists:** No information available X = listed U.S.A. (TSCA) Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (KECL) China (IECSC) Japan (ENCS) Philippines (PICCS) Japan (ISHL) Japan (ISHL)

### **International Inventories**

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	-	-	-	-	-	-	-
3,3-Diaminobenzidine tetrahydrochloride	7411-49-6	X	-	X	ACTIVE	231-018-9	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	-	-	-	-	X	-	-	-
3,3-Diaminobenzidine tetrahydrochloride	7411-49-6	X	-	-	-	X	X	X	X

### **Legend:**

X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

## Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

## Other International Regulations

### Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
3,3-Diaminobenzidine tetrahydrochloride	-	Use restricted. See item 13. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

<https://echa.europa.eu/substances-restricted-under-reach>

### Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	Not applicable	Not applicable	Not applicable	Not applicable
3,3-Diaminobenzidine tetrahydrochloride	7411-49-6	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	Not applicable	Not applicable	Not applicable	Not applicable
3,3-Diaminobenzidine tetrahydrochloride	7411-49-6	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other information

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### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**