

Material Safety Data Sheet

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Version 1.2

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	TRIETHYLENETETRAMINE
Product Number	90460
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
TRIETHYLENETETRAMINE	112-24-3	203-950-6	612-059-00-5

Formula	C6H18N4
Molecular Weight	146.24 AMU
Synonyms	Araldite hardener HY 951 * Araldite HY 951 * N,N-Bis(2-aminoethyl)-1,2-diaminoethane * N,N'-Bis(2-aminoethyl)ethylenediamine * DEH 24 * 3,6-Diazaoctane-1,8-diamine * 1,2-Ethanediamine, N,N'-bis(2-aminoethyl)- * Ethylenediamine, N,N'-bis(2-aminoethyl)- * HY 951 * Tecza * TETA * 1,4,7,10-Tetraazadecane * Trien * Trientine

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Harmful in contact with skin. Causes burns. May cause sensitization by skin contact. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

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

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Store in a cool dry place.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

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

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1 MG/M3
Poland		NDSCh	3 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	6 mg/m3
		1 ppm

Remarks: S

PERSONAL PROTECTIVE EQUIPMENT

Special Protective Measures: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

9 - Physical and Chemical Properties

Appearance Color: Almost colorless
 Form: Clear viscous liquid

Property Value At Temperature or Pressure

pH	N/A	
BP/BP Range	284 - 287 °C	
MP/MP Range	12 °C	
Flash Point	129 °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	0.973 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	5 g/l	
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

Materials to Avoid: Oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

11 - Toxicological Information

RTECS NUMBER: YE6650000

ACUTE TOXICITY

LD50
Oral
Rat
2500 mg/kg

LD50
Oral
Mouse
1600 mg/kg

LD50
Intraperitoneal
Mouse
468 MG/KG

LD50
Intravenous
Mouse
350 MG/KG

LD50

Oral
Rabbit
5500 mg/kg

LD50
Skin
Rabbit
805 mg/kg

IRRITATION DATA

Skin
Rabbit
490 mg
Remarks: Open irritation test

Skin
Rabbit
5 mg
24H
Remarks: Severe irritation effect

Eyes
Rabbit
49 mg
Remarks: Severe irritation effect

Eyes
Rabbit
20 mg
24H
Remarks: Moderate irritation effect

SENSITIZATION

Sensitization: May cause allergic respiratory and skin reactions

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

ROUTE OF EXPOSURE

Multiple Routes: Harmful if swallowed, inhaled, or absorbed through skin.

CHRONIC EXPOSURE - MUTAGEN

Rat
10 UG/L
Cell Type: liver
Unscheduled DNA synthesis

Hamster
1 MG/L
Cell Type: ovary
Sister chromatid exchange

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 8715 MG/KG
Route of Application: Oral
Exposure Time: (1-21D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Specific Developmental Abnormalities: Homeostasis

Species: Guinea pig
Dose: 3667 MG/KG
Route of Application: Skin
Exposure Time: (10-56D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Species: Rat
Dose: 9130 MG/KG
Route of Application: Oral
Exposure Time: (1-22D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Specific Developmental Abnormalities: Homeostasis
Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Rat
Dose: 17430 MG/KG
Route of Application: Oral
Exposure Time: (1-21D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 2259
Class: 8
PG: II
Proper Shipping Name: Triethylenetetramine

IMDG

UN#: 2259
Class: 8
PG: II
Proper Shipping Name: Triethylenetetramine
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 2259
Class: 8
PG: II
Proper Shipping Name: Triethylenetetramine
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 612-059-00-5

INDICATION OF DANGER: C

Corrosive.

R-PHRASES: 21 34 43 52/53

Harmful in contact with skin. Causes burns. May cause sensitization by skin contact. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 26 36/37/39 45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 4

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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