TEMED

sc-29111

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
TEMED

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
EMERGENCY:
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C6-H16-N2, "ethylenediamine, N, N, N' , N' -tetramethyl-", "1, 2-bis-(dimethylamino)ethane", "1, 2-di(dimethylamino)ethane", "Propamine D", Temed, Tetrameen, "N, N, N' , N' -tetramethyl-1, 2-diaminoethane", "N, N, N' , N' -tetramethylethanediamine", "N, N, N' , N' -tetramethylethylenediamine", "tetramethyl ethylene diamine", "N, N, N' N' -tetramethylethylenediamine", TMEDA, "epoxy hardener"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	3		
Toxicity:	2		
Body Contact:	3		
Reactivity:	0		
Chronic:	2		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Causes burns.
Risk of serious damage to eyes.
Harmful by inhalation and if swallowed.
Highly flammable.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
■ The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
■ Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.
■ Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.
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■ Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhea. The vomitus may contain blood and mucous.
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EYE

■ The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
■ If applied to the eyes, this material causes severe eye damage.
■ Vapors of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in "halos" around lights. This effect is temporary, lasting only for a few hours.
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■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

■ The material can produce chemical burns following direct contactwith the skin.
■ Volatile amine vapors produce irritation and inflammation of the skin. Direct contact can cause burns.
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■ Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitization dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling.
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INHALED

■ If inhaled, this material can irritate the throat andlungs of some persons.
■ Inhalation of amine vapors may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety There may also be wheezing.
■ Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.
■ Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) and may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapors may trigger an intense reaction in individuals showing "amine asthma".
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CHRONIC HEALTH EFFECTS

■ There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
■ Principal routes of exposure are usually by inhalation of vapor and skin contact/absorption.
Sensitization may give severe responses to very low levels of exposure, i.e. hypersensitivity.
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As with any chemical product, contact with unprotected bare skin; inhalation of vapor, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
tetramethylethylenediamine	110-18-9	>95

Section 4 - FIRST AID MEASURES

SWALLOWED

■ If poisoning occurs, contact a doctor or Poisons Information Center. · If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. · Observe the patient carefully. · Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious · Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. · Seek medical advice.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ For acute or short-term repeated exposures to highly alkaline materials:
· Respiratory stress is uncommon but present occasionally because of soft tissue edema.
· Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.

Section 5 - FIRE FIGHTING MEASURES

Upper Explosive Limit (%):	9.08
Specific Gravity (water=1):	0.70
Lower Explosive Limit (%):	0.98
Relative Vapor Density (air=1):	4.0

EXTINGUISHING MEDIA

· Water spray or fog.
· Alcohol stable foam.
· Dry chemical powder.
· Carbon dioxide.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· May be violently or explosively reactive.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 1000 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Liquid and vapor are highly flammable.
· Severe fire hazard when exposed to heat, flame and/or oxidizers.
Decomposes on heating and produces toxic fumes of nitrogen oxides (NOx) and ammonia (NH3).

FIRE INCOMPATIBILITY

■ Avoid contamination with strong oxidizers as ignition may result.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Full face- shield.
Gloves:
Respirator:
Type AK-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Remove all ignition sources.
· Clean up all spills immediately.
MAJOR SPILLS
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

■ Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid.
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STORAGE REQUIREMENTS

· Store in original containers in approved flame-proof area.
· No smoking, naked lights, heat or ignition sources.

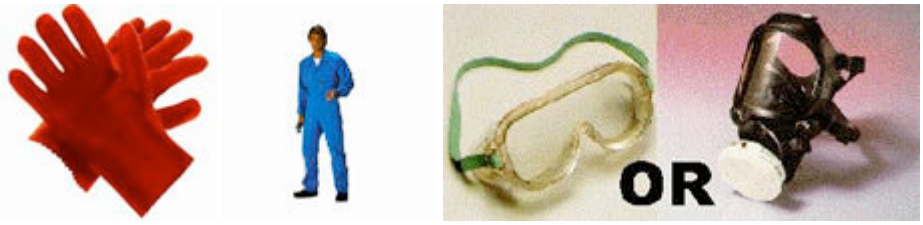
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• tetramethylethylenediamine: CAS:110-18-9

PERSONAL PROTECTION



RESPIRATOR

Type AK-P Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE

· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

ENGINEERING CONTROLS

■ Use in a well-ventilated area or Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances.
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In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Mixes with water.
Alkaline.

State	Liquid	Molecular Weight	116.24
Melting Range (°F)	-67	Boiling Range (°F)	248- 251.6
Solubility in water (g/L)	Miscible	Flash Point (°F)	50
pH (1% solution)	Not available	Decomposition Temp (°F)	Not available
pH (as supplied)	Not applicable	Autoignition Temp (°F)	Not available
Vapor Pressure (mmHg)	9.751 est.	Upper Explosive Limit (%)	9.08
Specific Gravity (water=1)	0.70	Lower Explosive Limit (%)	0.98
Relative Vapor Density (air=1)	4.0	Volatile Component (%vol)	100
Evaporation Rate	<1 BuAc=1		

APPEARANCE

Clear to hazy amber liquid with amine odour; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
■ Segregate from strong oxidizers.
Can react explosively with mercury.
Avoid storage with acids, acid chlorides, acid anhydrides, carbon dioxide, copper and copper alloys.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

TETRAMETHYLETHYLENEDIAMINE

TOXICITY AND IRRITATION
TETRAMETHYLETHYLENEDIAMINE:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 1580 mg/kg	Skin (rabbit): 10 mg/24h (open)
Dermal (rabbit) LD50: 5390 mg/kg	Eye (rabbit): 0.75 - SEVERE

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
tetramethylethylenediamine	HIGH		LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions
A. General Product Information
Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.
· Consult manufacturer for recycling options and recycle where possible .
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: None Hazard class or Division: 3
Identification Numbers: UN2372 PG: II
Label Codes: 3 Special provisions: IB2, T4,
TP1
Packaging: Exceptions: 150 Packaging: Non- bulk: 202
Packaging: Exceptions: 150 Quantity limitations: 5 L
Passenger aircraft/rail:
Quantity Limitations: Cargo 60 L Vessel stowage: Location: B
aircraft only:
Vessel stowage: Other: None
Hazardous materials descriptions and proper shipping names:
1,2-Di-(dimethylamino)ethane

Air Transport IATA:
ICAO/IATA Class: 3 ICAO/IATA Subrisk: None
UN/ID Number: 2372 Packing Group: II
Special provisions: None
Cargo Only
Packing Instructions: 307 Maximum Qty/Pack: 60 L
Passenger and Cargo Passenger and Cargo

Packing Instructions: 305 Maximum Qty/Pack: 5 L
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: Y305 Maximum Qty/Pack: 1 L
Shipping Name: 1,2-DI-(DIMETHYLAMINO) ETHANE

Maritime Transport IMDG:

IMDG Class: 3 IMDG Subrisk: None
UN Number: 2372 Packing Group: II
EMS Number: F-E , S-D Special provisions: None
Limited Quantities: 1 L
Shipping Name: 1,2-DI(DIMETHYLAMINO)ETHANE

Section 15 - REGULATORY INFORMATION

tetramethylethylenediamine (CAS: 110-18-9) is found on the following regulatory lists;

"Canada Ingredient Disclosure List (SOR/88-64)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","OECD Representative List of High Production Volume (HPV) Chemicals","US - New Jersey Right to Know Hazardous Substances","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA High Production Volume Program Chemical List","US Toxic Substances Control Act (TSCA) - Inventory","US TSCA Section 4 (e) - ITC Priority Testing List","US TSCA Section 8 (a) - Preliminary Assessment Information Rules (PAIR) - Reporting List","US TSCA Section 8 (d) - Health and Safety Data Reporting"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Possible respiratory and skin sensitiser*.
* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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