

G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

PRODUCT NAME:-----> **TRIETHYLENETETRAMINE**

PRODUCT NUMBER(S):-----> 289876

TRADE NAMES/SYNONYMS:--> Triethylenetetramine, TETA, Aliphatic Amine

CAS-No: 112-24-3

CHEMICAL FAMILY: Amine, Aliphatic

RECOMMENDED USE: Curing Agent for Epoxy Resin

USES ADVISED AGAINST: No information available

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company: **G.J. CHEMICAL CO., INC.**

Address: 40 VERONICA AVENUE
SOMERSET, NJ 08873

Telephone: 1-973-589-1450

Fax: 1-973-589-3072

Emergency Telephone Number

Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)

Acute toxicity, Dermal (Category 3)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

Skin sensitization (Category 1)

Acute aquatic toxicity (Category 3)

Chronic aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements



Pictogram

Signal word **Danger**

Hazard statement(s)

- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/ physician.
- P322 Specific measures (see supplemental first aid instructions on this label).
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: none

3. INGREDIENTS

Ingredient	CAS No.	% by WT. Range	CLASSIFICATION
Triethylenetetramine	112-24-3	100	Acute toxicity, Dermal (Category 3)

EC-No.203-950-6		Skin corrosion (Category 1B)
Index-No.612-059-00-5		Serious eye damage (Category 1)
		Skin sensitization (Category 1)
		Acute aquatic toxicity (Category 3)
		Chronic aquatic toxicity (Category 3)

4. FIRST-AID PROCEDURES

INHALATION: TRIETHYLENETETRAMINE

****FIRST AID- Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. If breathing is difficult if necessary give oxygen. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.**

SKIN CONTACT: TRIETHYLENETETRAMINE

****FIRST AID- Immediately remove contaminated clothing. Use a safety shower flush skin thoroughly for 15 minutes. Wash affected area with soap and water. For chemical burns cover area with sterile, dry dressing bandage securely, but not too tight. Consult a physician if irritation persists.**

EYE CONTACT: TRIETHYLENETETRAMINE

****FIRST AID- Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Remove contact lenses, if worn, after initial flush. Do not attempt to neutralize with chemical agents. Get medical attention immediately.**

INGESTION: TRIETHYLENETETRAMINE

****FIRST AID- Do not induce vomiting. If victim is conscious and can swallow immediately give two glasses (16oz) of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.**

5. FIRE FIGHTING MEASURES

Flash Point: 264°F (129°C)

LEL %:N.D.

UEL %:N.D.

Auto-ignition Temp: 635°F (335°C)

SUITABLE EXTINGUISHING MEDIA: Foam--> x CO2--> x Dry Chemical--> x Water-fog--> x Other-->

CONDITIONS OF FLAMMABILITY: Not flammable or combustible.

ADVICE FOR FIREFIGHTERS: Shut off source. Isolate hazard area and deny entry. Move container from fire area if you can do it without risk. Water fog may be used to cool closed containers to prevent pressure build up and possible auto-ignition or explosion when exposed to extreme heat. Cool containers with water-fog from as far a distance as possible. Water-fog may cause frothing, which can be violent, if sprayed into containers of hot or burning liquid. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Wear NIOSH approved self-contained breathing apparatus for confined spaces and where there is exposure to vapors. Use full fire-fighting protective clothing. If protective equipment is not available or not used, fight fire from a protected location or safe distance.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from all sources of ignition. During a fire potentially toxic/irritating fumes from combustion/decomposition products may be generated.

COMBUSTION PRODUCTS: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides, nitrogen oxides and other unidentified organic compounds evolve when this material undergoes combustion.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES: Corrosive: Prevent contact with eyes and skin. Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations.

METHODS FOR CONTAINMENT AND CLEAN UP: Use explosion proof equipment and equipment that can withstand the corrosive nature of this product. Shut off valves, contain spill, keep out of water sources and sewers, for smaller spills add

non-flammable absorbent in spill area. For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent. Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations.

7. HANDLING AND STORAGE

PERSONAL PRECAUTIONARY MEASURES: This material presents a corrosive hazard. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing.

HANDLING INFORMATION: Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers.

STATIC HAZARD: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 “Flammable and Combustible Liquids” and National Fire Protection Association (NFPA 77) “Recommended Practice on Static Electricity”.

CONDITIONS FOR SAFE STORAGE: Follow maximum allowed pile heights specified in the BOCA codes or the NFPA manual. Local fire authorities should be notified for storage of this material in any quantity. Local permits are required for storage in warehouse quantities. Do not store above 120°F. Store large quantities only in cool, dry areas in buildings designed to comply with OSHA 1910.106. Store under inert gas. Keep containers tight and upright to prevent leakage. Do not contact with oxidizing materials. Keep containers closed when not in use. Do not take internally. Store away from incompatible materials. Do not store in direct sunlight.

CONTAINER WARNINGS: Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner.

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

EXPOSURE GUIDELINES:

Ingredient	CAS No.	% by WT. Range	Exposure Limits
Triethylenetetramine	112-24-3 EC-No.203-950-6	100%	1ppm TWA (WEEL)

Key: (PEL) = Permissible Exposure Limit OSHA
(TLV) = Threshold Limit Value OSHA & ACGIH
(STEL) = Short Term Exposure Limit ACGIH
(WEEL) = USA. Workplace Environmental Exposure Levels
(TWA) = Time Weighted Average
CAS = Chemical Abstracts Registry Number
IDLH = Immediate Danger to Life and Health
N.E. =None Established

EXPOSURE GUIDELINES: Consider the potential hazards of this material (Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

ENGINEERING CONTROLS: Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

RESPIRATORY PROTECTION: For known vapor concentrations use a NIOSH/MSHA air purifying respirator with full face-piece and organic vapor cartridge for exposures >1 <10 times WEEL TWA. For exposures greater than 10 times WEEL TWA or for unknown vapor concentrations use NIOSH/MHSA positive pressure self contained breathing apparatus with full face-piece.

BODY CLOTHING: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged contact with this substance. Use chemical resistant apron or other impervious clothing. Remove and wash contaminated clothing before reuse.

SKIN PROTECTION: Employee must wear appropriate protective gloves to prevent contact with this substance. Nitrile Rubber chemical resistant gloves. Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.

EYE/FACE PROTECTION: Use safety eyewear with splash-guards or face shield. Contact lenses should not be worn. Emergency shower and eyewash should be easily accessible to the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, COLOR AND ODOR: Triethylenetetramine is a yellow mobile liquid with ammonia-like odor.

Odor Threshold----- > No data available
pH----- > No data available
Molecular Weight----- > 146.23amu
Melting/Freezing Point----- > 12 °C (54 °F)
Boiling Range ----- > 266 - 267 °C (511 - 513 °F)
Specific Gravity----- > 0.982 @25°C
Vapor Pressure----- > <0.001 mmHg@20°C (68°F)
Vapor Density (air=1)----- > 5.05
Water Solubility----- > Soluble
Partition Coefficient n-Octanol/Water-> No data available
Evaporation Rate (Butyl Acetate=1)----> No data available
Flash Point----- > 129 °C (264 °F) - closed cup
Upper Flammability Limit-----> No data available
Lower Flammability Limit-----> No data available
Auto-Ignition Temperature-----> 335°C (635°F)
Decomposition Temperature-----> No data available
Viscosity-----> No data available
Explosive Properties-----> No data available
Oxidizing Properties-----> No data available

Other Information: No data Available

10. STABILITY AND REACTIVITY INFORMATION

CHEMICAL STABILITY: Unstable () Stable (X)

POSSIBILITY OF HAZARDOUS REACTIONS: No data available

CONDITIONS TO AVOID: Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame. Exposure to water vapor.

INCOMPATIBLE MATERIALS: Acids, Acrylic Acid, Oxidizers, Aldehydes, Copper.

HAZARDOUS DECOMPOSITION PRODUCTS: Fumes, Smoke, Carbon Monoxide, Carbon Dioxide, oxides of Nitrogen.

HAZARDOUS POLYMERIZATION: May occur () Will not occur (X)

11. TOXICOLOGICAL INFORMATION

ACUTE HEALTH EFFECTS:

Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x Eye--> x

Effects of overexposure:

Eye> Corrosive with symptoms of burning, redness, pain, blurred vision, and edema.

Skin> Corrosive with symptoms of burning, scarring, and reddening;

Inhalation> Severe irritation of the respiratory tract or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion, unconsciousness or coma.

Ingestion> Toxic with severe irritation, nausea, vomiting, abdominal spasms, and restlessness.

Chronic:

Eye> Repeated or prolonged exposure may result in conjunctivitis:

Skin> Repeated or prolonged exposure may result in dermatitis:

Inhalation> May cause ulcerative changes in the mouth and gastrointestinal disturbances. May sensitize the immune system.

Ingestion> Prolonged and repeated exposure may damage the liver and kidneys.

Medical Conditions Aggravated by Exposure> Skin contact may aggravate an existing dermatitis. Inhalation may aggravate asthma and other pulmonary diseases.

ACUTE TOXICITY:

The effects of overexposure shown in Section III are based on acute animal toxicity profiles. Typical values are:

Ingredient	 Oral LD50(Rat)	 Skin LD50(Rabbit) 	Inhalation LC50	
Triethylene-tetramine	2500mg/kg	550mg/kg		

MUTAGENIC EFFECTS: No data available

CARCINOGEN STATUS: 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, NTP, OSHA or ACGIH.

REPRODUCTIVE TOXICITY: No data available

Specific target organ toxicity (STOT-SE) - single exposure (Globally Harmonized System): no data available

Specific target organ toxicity (STOT-RE) - repeated exposure (Globally Harmonized System): no data available

ASPIRATION HAZARD: No data available

ADDITIONAL INFORMATION: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, cough, Shortness of breath, Headache, Nausea
RTECS: YE6650000

11. TOXICOLOGICAL INFORMATION

DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS

May be dangerous if it enters water intakes.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.

AQUATIC TOXICITY:

Toxicity to fish:

Expected to be practically non toxic LC/EC/IC>100mg/L

Toxicity to algae:

Expected to be slightly toxic 10<LC/EC/IC 50<=100mg/L

Acute toxicity - Invertebrates:

Expected to be slightly toxic, 10<LC/EC/IC 50<=100mg/L

WATERFOWL TOXICITY: No data available

PERSISTENCE AND DEGRADABILITY: Expected to be not readily biodegradable.

BIOACCUMULATION: Not expected to bioaccumulate significantly.

BIOCONCENTRATION FACTOR (BCF): No data available.

ENVIRONMENTAL FATE: No data available.

FOOD CHAIN CONCENTRATION POTENTIAL: None noted

13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS: Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment, and or disposal methodologies for spent materials and residues at time of disposition. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. .Dispose in accordance with all applicable disposal regulations. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

CONTAMINATED PACKAGING: Dispose of as unused product

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

USDOT Shipping Name-----> Triethylenetetramine
USDOT ID Number-----> UN2259
USDOT Hazard Classification-----> 8, (Corrosive Liquid)
USDOT Label Codes-----> 8 (Corrosive)
USDOT Package Code-----> II
Emergency Response Guide-----> 153

IMDG

UN number: 2259 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: TRIETHYLENETETRAMINE

IATA

UN number: 2259 Class: 8 Packing group: II
Proper shipping name: Triethylenetetramine

15. REGULATORY INFORMATION

SARA TITLE III (Superfund Amendment and Reauthorization Act)

SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355)- Not Listed

SECTION 313: Toxic Chemicals Listing (40 CFR 372.65)- Not Listed

SECTION 311/312: Hazard Categorization (40 CFR 370)- Acute Health Hazard, Chronic Health Hazard

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4)- Not Listed Reportable Quantity - None

SECTION 101(14) Reportable Quantity: None

**Massachusetts Right To Know Components
Triethylenetetramine CAS-No.112-24-3**

**Pennsylvania Right To Know Components
Triethylenetetramine CAS-No.112-24-3**

**New Jersey Right To Know Components
Triethylenetetramine CAS-No.112-24-3**

**California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.**

TSCA (Toxic Substance Control Act)

Triethylenetetramine CAS-No.112-24-3 is listed on the TSCA Inventory.

16. OTHER INFORMATION:

HMIS (Hazardous Materials Identification System)

Hazard Rating:

4-Extreme

3-High

2-Moderate

1-Slight

0-Insignificant

NFPA RATINGS (SCALE 0-4): Health=3 Fire=1 Reactivity=0

HMIS RATINGS (SCALE 0-4): Health=3 Fire=1 Reactivity=0 PPE=X

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Prepared by-----> T.G. Fenstermaker Jr.

Acronyms:

ACGIH	-	American Conference of Governmental Industrial Hygienists
AIHA	-	American Industrial Hygiene Association
ANSI	-	American Nation Standards Institute
API	-	American Petroleum Institute
CERCLA	-	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	-	U.S. Department of Transportation
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information System

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