



1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTIFIER: TRIETHYLENETETRAMINE (TETA)
MANUFACTURER: TOSOH SPECIALTY CHEMICALS USA, Inc.
ADDRESS: 1720 Windward Concourse, Suite 125
Alpharetta, Georgia 30005
PHONE: 1-770-442-9501
EMERGENCY PHONE: CHEMTREC 1-800-424-9300 OR 1-703-527-3887
RECOMMENDED USE: General industrial products

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION

Acute toxicity

Oral:	Category 4
Dermal:	Category 4
Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1
Sensitization – Skin	Category 1B

HAZARD SYMBOL:



SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Harmful if swallowed.
Harmful in contact with skin.
Causes severe skin burns and serious eye damage.
May cause an allergic skin reaction.



2. HAZARDS IDENTIFICATION (continued)

PREVENTION:

Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing must not be allowed out of the workplace.

RESPONSE:

If in eyes: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison control center/doctor.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a poison control center/doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice / attention.
Wash contaminated clothing and before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison control center/doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting. Call a poison control center/doctor if you feel unwell.

STORAGE:

Store locked up.

DISPOSAL:

Dispose of contents/container in accordance with Federal and state regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS #</u>	<u>OSHA Hazardous (Y/N)</u>	<u>Concentration (%)</u>
Triethylenetetramine	112-24-3	Y	100

4. FIRST AID MEASURES

EYE CONTACT:

Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention.

SKIN CONTACT:

Remove contaminated clothing and shoes. Wash with plenty of water, for at least 15 minutes. Seek immediate medical attention. Launder contaminated clothing and shoes before re-use.

INGESTION:

Do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of water to drink. Do not give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended.



4. FIRST AID MEASURES (continued)

INHALATION:	If respiratory irritation or distress occurs, remove victim to fresh air. Seek immediate medical attention.
NOTES TO PHYSICIAN:	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. No specific antidote available.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:	Water spray, fog, dry chemical, foam, CO ₂
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Closed containers may rupture due to buildup of pressure when exposed to extreme heat.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:	Firefighters should wear NIOSH/MSHA-approved self-contained breathing apparatus and full protective clothing. Cool containers exposed to fire with water.
HAZARDOUS DECOMPOSITION MATERIALS UNDER FIRE CONDITIONS	Oxides of carbon, oxides of nitrogen, ammonia.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:	Wear appropriate protective gear for the situation. (See Personal Protection Information in Section 8).
ENVIROMENTAL PRECAUTIONS:	Do not flush to drain. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.
METHOD FOR CLEAN UP:	Extinguish or remove all sources of ignition. Absorb with an inert absorbent, sweep up and place in an appropriate closed container. Clean up residual material by washing area with water. Collect washings for disposal. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:	Handle material with suitable protection (See Section 8). Handle with adequate ventilation. Avoid breathing vapors. Avoid contact with eyes, skin and clothing.
VENTILATION:	General area dilution/exhaust ventilation.
CONDITIONS FOR SAFE STORAGE:	Store upright in a cool, dry, well ventilated area out of direct sunlight. Keep away from heat, open flames and ignition sources. Keep container tightly closed. Do not reuse container.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING MEASURES: Set up hand-wash station and eyewash station near work area.

General area dilution/exhaust ventilation.

EXPOSURE LIMITS: None

PERSONAL PROTECTION MEASURES:

Respiratory protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with regulatory standards and/or industrial recommendations. Self-contained or supplied-air respiratory equipment is recommended.

Eye protection: Safety glasses with side shields, goggles or face shield are recommended.

Skin protection: Skin contact should be minimized through the use of chemical-resistant gloves and boots, and suitable protective clothing.

The following general measures should be taken when working or handling this material:

- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes of contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Pale yellow
ODOR:	Ammonia-like
pH:	12.4 (@25% aqueous)
MELTING POINT:	-31F (-35C)
BOILING POINT:	361F (183C)
FLASH POINT:	279F (137C)
AUTOIGNITION POINT:	635F (335C)
EXPLOSIVE LIMITS (Lower):	No data available
EXPLOSIVE LIMITS (Upper):	No data available
VAPOR PRESSURE:	< 1 Pa @ 20C (68F)
VAPOR DENSITY:	5.05 (Air = 1)
EVAPORATION RATE:	No data available
RELATIVE DENSITY:	0.981
SOLUBILITY IN WATER:	Soluble
PARTITION COEFFICIENT:	No data available
DECOMPOSITION TEMPERATURE:	No data available



10. STABILITY AND REACTIVITY

CHEMICAL STABILITY:	This material is stable under normal handling and storage conditions described in Section 7.
CONDITIONS TO AVOID:	Heat, open flame, sparks, direct sunlight.
INCOMPATIBLE MATERIALS:	Strong oxidizing agents, strong acids, copper, zinc, aluminum and their alloys.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon, oxides of nitrogen, ammonia.
HAZARDOUS POLYMERIZATION:	Not applicable

11. TOXICOLOGICAL INFORMATION

EYE CORROSION/IRRITATION:	Severely irritating, rabbit.
SKIN CORROSION/IRRITATION:	Severely irritating, rabbit.
ACUTE TOXICITY:	
ACUTE ORAL TOXICITY:	LD ₅₀ = 1716 mg/kg, rat.
ACUTE DERMAL TOXICITY:	LD ₅₀ = 1465 mg/kg, rabbit.
ACUTE INHALATION TOXICITY:	Not available
SKIN SENSITIZATION	Positive sensitizer (guinea pig).
GENETIC TOXICITY	Positive mutagenic activity in the Ames test, the Chinese hamster ovary (CHO) and the sister chromatid exchange (SCE) studies. Negative in the mouse micronucleus test.
CARCINOGENICITY:	When triethylenetetramine, at a concentration of 35%, was administered to the skin of male mice for their lifetime to determine the carcinogenic potential of the material, no treatment-related tumors were reported. This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.
REPRODUCTIVE TOXICITY:	When triethylenetetramine was administered to pregnant rats and mice, an increase in birth defects was observed in the exposed offspring at maternally-toxic doses in rats of >830 mg/kg/day. However, it is not clear if this effect was due to abnormally low tissue levels of copper in the mother. Reproductive studies in rabbits via dermal administration at maternally-toxic doses of up to 125 mg/kg/day did not produce statistically-significant levels of developmental toxicity.
STOT-SINGLE EXPOSURE:	Not available



11. TOXICOLOGICAL INFORMATION

STOT-REPEATED EXPOSURE: When TETA was administered via drinking water, the NOEL = 276 mg/kg/day (male rat) and 352 mg/kg/day (female rat), 487 mg/kg/day (male mouse) and 551 mg/kg/day (female mouse). No effects on the reproductive organs were noted in these studies.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: 96hr LC₅₀ = 330 mg/L (fathead minnow)
24hr EC₅₀ = 31.1 mg/L (daphnia magna),
NOEC = 18 mg/L (daphnia magna)
72hr IC₅₀ = 20 mg/L, NOEC < 2.5 mg/L (algae, growth rate)

PERSISTENCE AND DEGRADABILITY: Not readily biodegradable.

MOBILITY IN SOIL: No data available

13. DISPOSAL CONSIDERATION (INCLUDING CONTAINER)

RESIDUAL WASTE: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from Federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

CONTAMINATED VESSELS AND CONTAINERS:

Rinse containers before disposal. Do not allow rinsate to enter the water systems.
EPA Hazardous Waste = C (Corrosive)

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: TRIETHYLENETETRAMINE
UN NUMBER: UN2259
UN CLASS or DIVISION: 8
UN PACKING GROUP: II
LABELS: Corrosive
EMERGENCY GUIDE#: 153



15. REGULATORY INFORMATION

Inventory Status:	US (TSCA):	Yes
	Canada (DSL):	Yes
	EU (REACH):	Yes
	Australia (AICS):	Yes
	Japan (METI):	Yes
	Korea (KECL):	Yes

Where: Yes = all ingredients are listed on the inventory, Exempt = All ingredients are either on the inventory or exempt from the requirements of listing, No = Not determined, or one or more ingredients are not on the inventory and are not exempt from listing

SARA Title III Hazard Classes:	Fire Hazard:	No
	Reactive Hazard:	No
	Release of Pressure:	No
	Acute Health Hazard:	Yes
	Chronic Health Hazard:	Yes

SARA Extremely Hazardous Substances / CERCLA Hazardous Substances: None

California Proposition 65: This product does not contain any components that are regulated under Proposition 65

16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THIS MSDS

National Fire Protection Association (“NFPA”) Hazard Ratings:

Health: 3 (Severe)
Flammability: 1 (Slight)
Reactivity: 0 (Minimal)

National Paint and Coatings Hazardous Materials Identification System (“HMIS”) Hazard Ratings:

Health: 3 (Severe)
Flammability: 1 (Slight)
Physical Hazard: 0 (Minimal)

HISTORY:
Date previous SDS: February 4, 2015
Date of issue: March 21, 2019
Reasons for Revision: Regulatory review and update. Change(s) in Section(s): None



**16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND
REVISION OF THIS SDS (continued)**

Disclaimer: The information set forth herein has been gathered from standard reference materials and/or TOSOH SPECIALTY CHEMICALS USA, INC and its related, subsidiary and affiliated companies' test data and is to the best knowledge and belief of TOSOH SPECIALTY CHEMICALS USA, INC and its related, subsidiary and affiliated companies, accurate and reliable. Such information is offered solely for your consideration, investigation, and verification, and is not suggested or guaranteed that the hazard precautions or procedures mentioned are the only ones that exist. TOSOH SPECIALTY CHEMICALS USA, INC and its related, subsidiary and affiliated companies make no warranties, express or implied, and expressly disclaim any and all such warranties with respect to the use of such information or the use of specific material identified herein in combination with any other material or process, and assume no responsibility therefor. TOSOH SPECIALTY CHEMICALS USA, INC and its related, subsidiary and affiliated companies make no representation or warranty, express or implied, and EXPRESSLY DISCLAIM ANY AND ALL SUCH WARRANTIES, as to the usefulness, sufficiency, MERCHANTABILITY or FITNESS FOR ANY PURPOSE whatsoever of the materials identified herein. The purchaser bears sole responsibility for testing, evaluating and determining the suitability of these materials for whatever use(s), manufacturing and refining processes, and any other such application(s) for which it intends or ultimately makes of these materials. Purchaser bears sole responsibility for obtaining any and all regulatory, legal and governmental approval necessary for such use(s).

END OF SAFETY DATA SHEET