



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

PRODUCT IDENTIFIER: PENTAETHYLENEHEXAMINE (PEHA)
MANUFACTURER / IMPORTER: 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.

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.



2. HAZARDS IDENTIFICATION (continued)

RESPONSE:	<p><u>If in eyes:</u> 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.</p> <p><u>If on skin (or hair):</u> Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a poison control center/doctor if you feel unwell.</p> <p><u>If skin irritation or rash occurs:</u> Get medical advice/attention. Wash contaminated clothing before reuse.</p> <p><u>If inhaled:</u> Remove person to fresh air and keep comfortable for breathing. Immediately call a poison control center/doctor.</p> <p><u>If swallowed:</u> Rinse mouth. Do NOT induce vomiting. Call a poison control center/doctor if you feel unwell.</p>
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>
Pentaethylenehexamine	4067-16-7	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 if irritation.
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, CO₂

**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).

ENVIRONMENTAL 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 to yellow-red
- pH:** 12.1 (10% aqueous, 68F (20C))
- ODOR:** Ammonia-like



9. PHYSICAL AND CHEMICAL PROPERTIES (continued)

MELTING POINT:	-22F (-30C)
BOILING POINT:	446F (230C) @ 1.3kPa
FLASH POINT:	387F (197C)
AUTOIGNITION POINT:	635F (335C)
EXPLOSIVE LIMITS(Lower):	No data available
EXPLOSIVE LIMITS(Upper):	No data available
VAPOR PRESSURE:	<0.001 Pa @ 20C (68F)
VAPOR DENSITY:	No data available
EVAPORATION RATE:	No data available
RELATIVE DENSITY:	1.00
SOLUBILITY IN WATER:	Soluble
PARTITION COEFFICIENT:	-3.67 (approx)
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:	Corrosive, rabbit.
SKIN CORROSION/IRRITATION:	Corrosive, rabbit.
ACUTE TOXICITY:	
ACUTE ORAL TOXICITY:	LD ₅₀ = 1862 mg/kg, rat.
ACUTE DERMAL TOXICITY:	LD ₅₀ = 1720 mg/kg, rabbit.
ACUTE INHALATION TOXICITY:	No data available.
SKIN SENSITIZATION	Positive sensitizer (guinea pig).
GENETIC TOXICITY	Positive in the Ames test. Negative in the mouse micronucleus study.



11. TOXICOLOGICAL INFORMATION (continued)

CARCINOGENICITY:	When similar polyamines (triethylenetetramine and tetraethylenepentamine) were tested in a dermal carcinogenicity study in mice, exposure did not increase the incidence of skin tumors.
REPRODUCTIVE TOXICITY:	No data available.
STOT-SINGLE EXPOSURE:	No data available.
STOT-REPEATED EXPOSURE:	No data available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY:	96hr LC ₅₀ =180 mg/L (guppy) 48hr EC ₅₀ = 18 mg/L (daphnia magna), 72hr EC ₅₀ =1.7 mg/L (algae, growth rate)
PERSISTENCE AND DEGRADABILITY:	Not inherently 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:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Pentaethylenhexamine)
UN NUMBER:	UN2735
UN CLASS or DIVISION:	8
UN PACKING GROUP:	III
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 SDS

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 5, 2015
Date of issue:	March 21, 2019
Reasons for Revision:	Regulatory review and update. Change(s) in Section(s): 11

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

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END OF SAFETY DATA SHEET