



MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : Tetraethylenepentamine
Cat No.: AC138110000; AC138110025; AC138110050; AC138112500;
AC138115000
CAS No. : 112-57-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended uses : Laboratory chemicals
Uses advised against: Food, drug, pesticide or biocidal product use.

1.3 Details of the supplier of the safety data sheet

Company : Krishna Solvechem Limited.
B/503, Sahayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.
Telephone : +91-22-6123 0222
Email : exports@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-8657457330

SECTION 2: Hazards identification

2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	(Category 4)
Acute dermal toxicity	(Category 3)
Skin Corrosion/Irritation	(Category 1B)
Serious Eye Damage/Eye Irritation	(Category 1)
Skin sensitization	(Category 1)

2.2 Label elements

Pictogram :



Signal word

Danger

Hazard statement (s)

Causes severe skin burns and eye damage



Precautionary statement (s)

Prevention

Harmful if swallowed
Toxic in contact with skin
May cause an allergic skin reaction

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing should not be allowed out of the workplace
Avoid breathing dust/fume/gas/mist/vapors/spray

Inhalation :

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell

IF ON SKIN (or hair):

If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention

Ingestion:

Rinse mouth. Do NOT induce vomiting

Storage:

Store locked up



Hazards not otherwise classified (HNOC)	Disposal: Dispose of contents/container to an approved waste disposal plant Toxic to aquatic life with long lasting effects
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SECTION 3: Composition / information on ingredients

3.1		
Component	CAS-No	Weight %
Tetraethylenepentamine	112-57-2	>95

SECTION 4: First aid measures

4.1 Description of first aid measures	
If inhalation :	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
In case of skin contact :	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
In case of eye contact :	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Ingestion :	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. If possible drink milk afterwards.
4.2 Most important symptoms and effects :	Causes burns by all exposure routes. May cause allergic skin reaction. . Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated
4.3 Notes to Physician :	Treat symptomatically

SECTION 5: Firefighting effects

5.1 Extinguishing media	
Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media: :	No information available
5.2 Flash Point : Method :	139 °C / 282.2 °F No information available



Autoignition Temperature:	321 °C / 609.8 °F
Explosion Limits:	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available
Specific Hazards Arising from the Chemical :	Keep the product and empty container away from heat and sources of ignition.
Hazardous Combustion Products :	Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrogen oxides

5.4 Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.			
<u>NFPA:</u>	Health	Flammability	Instability	Physical hazards
	3	1	0	N/A

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation. Use personal protective equipment as required.
- 6.2 Environmental precautions**
Do not flush into surface water or sanitary sewer system
- 6.3 Methods and materials for containment and cleaning up**
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Do not breathe mist/vapors/spray



7.2 Conditions for safe storage

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Corrosives area. Incompatible Materials. Strong oxidizing agents. copper.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

8.2 Exposure controls

Personal protective equipment -

Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice..

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Light yellow Liquid
b) Odour	Ammonia - like
c) Odour Threshold	No information available
d) pH	12 100 g/L aq.sol
e) Melting point / freezing point	-40 °C / -40 °F
f) Initial boiling point and	340 °C / 644 °F @ 760 mmHg



boiling range	
g) Flash point	18 °C / 64.4 °F
h) Evaporation rate	No information available
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	No data available No data available
k) Vapour pressure	<0.1 mbar @ 20 °C
l) Vapour density	6.53
m) Specific Gravity	0.990
n) Solubility	Soluble
o) Partition coefficient: n octanol/water	No data available
p) Auto-ignition temperature	321 °C / 609.8 °F
q) Decomposition temperature	No information available
r) Viscosity	No information available
s) Molecular formula	C8 H23 N5
t) Molecular Weight	189.3

SECTION 10: Stability and Reactivity

10.1 Reactive Hazard :	None known, based on information available
10.2 Chemical stability :	Hygroscopic
10.3 Possibility of hazardous reactions :	None under normal processing.
10.4 Conditions to avoid :	Exposure to moist air or water. Incompatible products.
10.5 Incompatible materials:	Strong oxidizing agents, Copper
10.6 Hazardous decomposition products :	Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides
10.7 Hazardous Polymerization	No information available



SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information:

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetraethylenepentamine	LD50 = 3990 mg/kg (Rat)	LD50 = 660 µL/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation : No information available

Sensitization: No information available

Carcinogenicity : The table below indicates whether each agency has Any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Tetraethylenepentamine	112-57-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects: No information available.

Reproductive Effects: No information available.

Developmental Effects : No information available.

Teratogenicity: No information available.

STOT - single exposure : None known

STOT - repeated exposure: None known

Aspiration hazard : No information available.

Symptoms / effects, both acute and delayed: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Endocrine Disruptor Information : No information available

Other Adverse Effects : The toxicological properties have not been fully investigated.



SECTION 12: Ecological information

12.1

Ecotoxicity:

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Tetraethylenepentamine	EC50: = 2.1 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: = 420 mg/L, 96h static (Poecilia reticulata)	Not listed	EC50: = 24.1 mg/L, 48h (Daphnia magna)

12.2 Persistence and degradability: Soluble in water Persistence is unlikely based on information Available. Insoluble in water

Bioaccumulation/ Accumulation No information available

12.3 Mobility: Will likely be mobile in the environment due to its water solubility. Log pow : 1

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

14.1 UN number :

DOT : UN2320 TDG : UN2320
IATA : UN2320 IMDG : UN2320

14.2 UN proper shipping name

DOT : TETRAETHYLENEPENTAMINE
TDG : TETRAETHYLENEPENTAMINE
IMDG : TETRAETHYLENEPENTAMINE
IATA : TETRAETHYLENEPENTAMINE

14.3 Transport hazard class(es) DOT: 8 TDG: 8 IMDG: 8 IATA: 8

14.4 Packaging group: DOT: III TDG: III IMDG: III IATA: III

SECTION 15: Regulatory information

15.1 United states of America Inventory:

Component	CAS-No	TSCA	TSCA Inventory notification Active/Inactive	TSCA - EPA Regulatory Flags
Tetraethylenepentamine	112-57-2	X	ACTIVE	-

Legend:



TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories:

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Tetraethylenepentamine	112-57-2	X	-	203-986-2	X	X	X	X	X	KE-01347

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

15.2 U.S. State Right-to-Know Regulations:

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Tetraethylenepentamine	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N



DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security - This product does not contain the any DHS Chemicals.

Other International Regulations

Mexico – Grade No information available

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Tetraethylenepentamine	112-57-2	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Tetraethylenepentamine	112-57-2	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
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 Limited

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Creation Date: 23-Mar-2012

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Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C F R 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16.2 Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

