



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: TRIETHANOLAMINE

CAS Number: 102-71-6

1. IDENTIFICATION:

Product Code : 90582, 90263, 98042, 91186, 91402,
Company Name : ADVENT CHEMBIO PRIVATE LIMITED
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2. HAZARDS IDENTIFICATION:

Hazard classification : Not a hazardous substance or mixture
Labels elements : Not a hazardous substance or mixture
Hazard symbol : Not classified
Signal word : Not classified
Hazard statement : Not a hazardous substance or mixture
Other hazards which do not result in GHS classification : Not a hazardous substance or mixture

3. COMPOSITION/ INFORMATION ON INGRADIENTS:

| Ingredient | CAS Number | Percent | Hazardous |
|-----------------|------------|-----------|-----------|
| Triethanolamine | 102-71-6 | NLT 99.0% | No |

4. FIRST AID MEASURES:

General information : Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion : Call a physician or poison control center immediately. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation : Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms persist.
Skin contact : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
Eye contact : Immediately flush with plenty of water for at least 15 minutes. If easy to do,

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remove contact lenses. Get medical attention.

Most important symptoms/effects, acute and delayed : Toxic if inhaled. Toxic if swallowed. Toxic in contact with skin. Irritating to eyes, respiratory system and skin.

Indication of immediate medical attention and special treatment needed : No data available.

5. FIRE FIGHTING MEASURES:

General information : In case of fire and/or explosion do not breathe fumes

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media : Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical : May ignite at high temperature.

Special protective equipment and precautions for firefighters

Special firefighting procedures : Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. ACCIDENTAL RELEASE MEASURES:

Personal precautions, protective equipment and emergency procedures : ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid breathing mists or vapors. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.

Methods and material for containment and cleaning up : Eliminate all ignition sources if safe to do so. Use only non-sparking tools. Take precautionary measures against static discharges. Stop leak if possible without any risk. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures : Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

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7. HANDLING AND STORAGE:

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/ face protection. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities : Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a dry, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. EXPOSURE CONTROLS PERSONAL PROTECTION:

Control parameters

Occupational exposure limits

| Chemical identity | Type | Exposure Limit values | Source |
|-------------------|---------|-----------------------|--|
| TRIETHANOLAMINE | TWA | 5 mg/m3 | US. ACGIH Threshold Limit Values (2011) |
| | ST ESL | 50 µg/m3 | US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (12 2010) |
| | AN ESL | 5 µg/m3 | US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (12 2010) |
| | TWA PEL | 5 mg/m3 | US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010) |

Appropriate engineering controls : No data available

Individual protection measures, such as personal protective equipment

General information : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

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| | | |
|-------------------------------|---|---|
| Eye/face protection | : | Wear safety glasses with side shields (or goggles). |
| Hand protection | : | Chemical resistant gloves. |
| Other | : | Wear suitable protective clothing. |
| Respiratory protection | : | In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower. Avoid contact with eyes, skin, and clothing. |
| Hygiene measures | : | |

9. PHYSICAL AND CHEMICAL PROPERTIES:

| | | |
|----------------------------------|---|--|
| Appearance | : | Clear, colourless to pale yellow, hygroscopic viscous liquid |
| Odor | : | Slight ammonia odor |
| Solubility | : | Miscible in water. |
| Formula | : | $N(CH_2CH_2OH)_3$ |
| Molecular Weight | : | 149.19 g/mol |
| Specific Gravity | : | 1.13 g/cm ³ at 20°C |
| pH | : | 10.5, 0.1 N Aqueous solution |
| Boiling Point | : | 335 °C |
| Melting Point | : | 20.5 °C |
| Flash Point | : | 179 °C |
| Vapor Density (Air=1) | : | 5.1 |
| Vapor Pressure (mm Hg) | : | No data available |
| Evaporation Rate (BuAc=1) | : | No data available |

10. STABILITY AND REACTIVITY:

| | | |
|---|---|---|
| Reactivity | : | No dangerous reaction known under conditions of normal use. |
| Chemical stability | : | Material is stable under ambient conditions.. |
| Possibility of hazardous reactions | : | Hazardous polymerization does not occur. |
| Conditions to avoid | : | Heat, sparks, flames. Sunlight. |
| Incompatible materials | : | nonferrous metals, Light metals |

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Hazardous decomposition products : In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION:**Information on likely routes of exposure**

Ingestion : Irritating. May cause nausea, stomach pain and vomiting.

Inhalation : May cause irritation to the mucous membranes and upper respiratory tract. May cause central nervous system effects

Skin contact : Causes mild skin irritation

Eye contact : Causes serious eye irritation.

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

Oral Product : LD 50 (Rat): 6.400 mg/kg

Dermal Product : LD 50 (Rabbit): > 2.000 mg/kg

Inhalation Product : No data available.

Repeated dose toxicity Product : No data available.

Skin corrosion/irritation Product : Prolonged or repeated skin contact may cause drying, cracking, or irritation

Serious eye damage/eye irritation Product : Irritating to eyes.

Respiratory or skin sensitization Product : Not a skin sensitizer.

Carcinogenicity Product : This substance has no evidence of carcinogenic properties

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans : No carcinogenic components identified.

US. National Toxicology Program (NTP) Report on Carcinogens : No carcinogenic components identified.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) : No carcinogenic components identified.

Germ cell mutagenicity

In vitro Product : No data available.

Reproductive toxicity Product : No components toxic to reproduction .

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Specific target organ toxicity - single exposure : Not known.
Product
Specific target organ toxicity - repeated exposure : None known.
Product
Aspiration hazard : Not classified
Product
Other effects : None known.

12. ECOLOGICAL INFORMATION:**Ecotoxicity****Acute hazards to the aquatic environment**

Fish : LC 50 (Fathead minnow (Pimephales promelas), 96 h): 10,610 - 13,010 mg/l
Product : Mortality

Aquatic invertebrates : LC 50 (Water flea (Daphnia magna), 24 h): 1,390 mg/l Mortality

Product : LC 50 (Brine shrimp (Artemia salina), 24 h): 5,600 mg/l Mortality

Chronic hazards to the aquatic environment

Fish : No data available.
Product

Aquatic invertebrates : No data available.
Product

Toxicity to Aquatic : No data available.
Plants :
Product

Persistence and degradability

Biodegradation : No data available.
Product

BOD/COD ratio : No data available.
Product

Bioaccumulative potential

Bioconcentration factor (BCF) : No data available on bioaccumulation.
Product

Partition coefficient n-octanol / water (log Kow) : No data available.
Product

Mobility in soil : The product is soluble in water. May spread in the aquatic environment.

Other adverse effects : There are no data on the ecotoxicity of this product.



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13. DISPOSAL CONSIDERATION:

- Disposal instructions** : Discharge, treatment, or disposal may be subject to national, state, or local laws. Disposal recommendations are based on uncontaminated material.
- Contaminated packaging** : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION:

| | UN No. | UN proper shipping name | Hazard Class(es) | Packaging group | Marine Pollutant |
|------|--------|-------------------------|------------------|-----------------|------------------|
| DOT | | | Not regulated. | | |
| IMDG | | | Not regulated. | | |
| IATA | | | Not regulated. | | |

15. REGULATORY INFORMATION:

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

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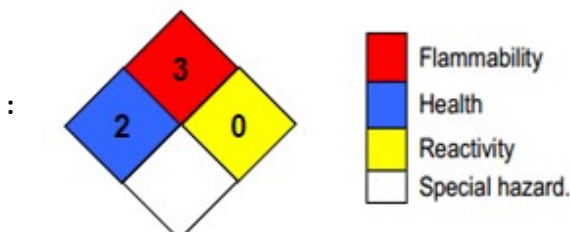
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16. OTHER INFORMATION:

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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