1. Product and company identification

Trade Name

Trimethylamine, aqueous

Celanese Ltd.
222 W. Las Colinas Blvd., Suite 900N
Irving, TX 75039
United States
Phone: 972 443 4000
Internet: www.celanese.com

Celanese Group, S de R.L. de C.V:
Freeway Coatzacoalcos-Villahermosa Km. 12.3 C.P. 96400
Coatzacoalcos, Ver
Mexico
Phone: (921) 211-5000/211-5048
Fax: (921) 211-5003

Transportation emergency phone numbers:
In USA, call 800 424 9300
Outside USA, call 703 527 3887, collect calls accepted.
In Mexico, call (921) 211-5048, 211-5000

Identified uses
chemical intermediate

2. Hazard Identification

GHS Classification

<table>
<thead>
<tr>
<th>Hazards</th>
<th>Category</th>
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<tbody>
<tr>
<td>Flammable liquid</td>
<td>Category 1</td>
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<tr>
<td>Acute oral toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ systemic toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>(single exposure)</td>
<td>Respiratory</td>
</tr>
</tbody>
</table>

Label elements

Signal Word  Danger
Hazard Statements

Extremely flammable liquid and vapor
Harmful if swallowed
Toxic if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
May cause respiratory irritation

Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
In case of fire:
Use alcohol-resistant foam, dry chemical, carbon dioxide (CO2) to extinguish.
Do not breathe dusts or mists
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection.
Wash face, hands and any exposed skin thoroughly after handling.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
Call a POISON CENTER or doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor.
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 CENTER or doctor.
Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Percent %</th>
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</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>60</td>
</tr>
<tr>
<td>TRIMETHYLAMINE</td>
<td>75-50-3</td>
<td>40</td>
</tr>
</tbody>
</table>

4. First aid measures

General Information
Remove contaminated, soaked clothing immediately and dispose of safely.
Skin
Wash off with 5% acetic acid followed by large amounts of plain water for at least 5 min as a final step. Immediate medical treatment necessary as untreated skin corrosion heals slowly and with difficulty.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Inhalation
Keep at rest. Aerate with fresh air. Call a physician immediately. Symptoms of poisoning may only appear several hours later.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

5. Fire-fighting measures

NFPA: Health: 3 Flammability: 4 Instability: 0

Suitable extinguishing media
Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO2)

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
Under conditions giving incomplete combustion, hazardous gases produced may consist of
Carbon monoxide
Carbon dioxide (CO2)
Nitrogen oxides (NOx)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapors are heavier than air and may spread along floors
Vapors may cause flash fire or explosion

Special protective equipment for fire-fighters
self-contained breathing apparatus (EN 133).

Environmental precautions
Water run-off and vapor cloud may be corrosive. Dike and collect water used to fight fire.

Other Information
Cool containers / tanks with water spray.

6. Accidental release measures

Personal precautions
Do not get in eyes, on skin, or on clothing. Do not breathe vapors, aerosols.. Keep away from heat and sources of ignition. Provide adequate ventilation.

Environmental precautions
Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater.
Methods for cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

Authority Notification
Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:

100 lb/45kg

7. Handling and storage

Advice on safe handling
Provide sufficient air exchange and/or exhaust in work rooms. Refill and handle product only in closed system.

Protection - fire and explosion:
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

Technical measures/Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Handle an open container with care. Store under nitrogen.

Material storage
Store locked up.

Incompatible products
Keep away from:, strong acids, oxidizing agents

8. Exposure controls / personal protection

OSHA Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIMETHYLAMINE</td>
<td>15 PPM</td>
</tr>
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</table>

ACGIH Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIMETHYLAMINE</td>
<td>5 PPM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIMETHYLAMINE</td>
<td>15 PPM</td>
</tr>
</tbody>
</table>

Mexico National Exposure Limits
No exposure limits established
Exposure controls

Engineering measures
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Protective equipment
A safety shower and eyewash should be readily available.

General advice
Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.

Respiratory protection
Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. To estimate an occupational exposure level see Section 8 and Section 11.

For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator fitted with organic vapor cartridge(s). The air purifying element must have an end of service life indicator, or a documented change out schedule must be established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Skin protection:
Wear impervious clothing and gloves to prevent contact. Neoprene is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Eye/face protection:
Wear chemical goggles when there is a reasonable chance of eye contact. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

9. Physical and chemical properties

Appearance
9. Physical and chemical properties

Form: liquid
Color: slightly yellowish
Odor: ammonia-like
Flash point: -6.7°C (20°F)
Method: closed cup
Ignition temperature: 190°C (374°F)
Lower explosion limit: 2.6 Vol. %
Upper explosion limit: 11.6 Vol. %
Boiling point/range: 3°C (37.4°F) @ 1013 hPa
Density: 0.636 g/ml @ 20°C
Water solubility: Soluble

10. Stability and reactivity

Chemical stability
Stable under normal conditions of handling, use and transportation.

Conditions to avoid
Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.

Incompatible Materials
Keep away from:
- strong acids
- strong oxidizing agents

Hazardous Combustion or Decomposition Products:
In the presence of sufficient oxygen, combustion may produce oxides of nitrogen and carbon dioxide. Nitrogen oxides can react with water to produce nitric acid. Combustion under oxygen starved conditions may produce numerous toxic products including carbon monoxide, cyanides and nitriles. Thermal decomposition products may include oxides of carbon.

11. Toxicological information

Potential health effects

Routes of exposure: Skin, eyes, inhalation, ingestion.

Immediate effects

Skin: Causes skin burns. May cause allergic skin reaction. Symptoms of overexposure include: Redness or discoloration, swelling, itching, burning or blistering of skin.

Eyes: Causes severe eye burns, damage irreversible. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision. Eye injury which may persist for several days. Loss of vision.

Inhalation: Causes respiratory tract burns. Harmful if inhaled. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty.
# Ingestion

Causes digestive tract burns. May be harmful if swallowed. Symptoms of exposure may include: Severe damage to the mouth, throat esophagus and/or stomach.

## Target organ effects

Overexposure (prolonged or repeated exposure) may cause:
- Injury to the eyes
- Digestive tract damage
- Respiratory tract damage
- Skin damage.

## Medical conditions which may be aggravated by exposure:

Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:
- Respiratory Tract
- Skin
- Eyes
- Digestive tract

### Water

**Acute oral toxicity**

<table>
<thead>
<tr>
<th>Species</th>
<th>LD50: &gt;5000 mg/kg, rat</th>
</tr>
</thead>
</table>

**TRIMETHYLAMINE**

<table>
<thead>
<tr>
<th>Toxicity Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50: 766 mg/kg, rat</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50: &gt; 5000 mg/kg, rat</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (4h): &gt; 5.9 mg/l</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>corrosive</td>
</tr>
<tr>
<td>Species</td>
<td>rabbit</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>corrosive</td>
</tr>
<tr>
<td>Species</td>
<td>rabbit eye</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>No toxicity to reproduction</td>
</tr>
<tr>
<td>Routes of exposure</td>
<td>oral gavage</td>
</tr>
<tr>
<td>Species</td>
<td>rat</td>
</tr>
<tr>
<td>Developmental effects</td>
<td>no adverse developmental effects</td>
</tr>
<tr>
<td>Routes of exposure</td>
<td>oral gavage</td>
</tr>
<tr>
<td>Species</td>
<td>rat</td>
</tr>
</tbody>
</table>

## 12. Ecological Information

Do not discharge product unmonitored into the environment.
13. Disposal considerations

Disposal considerations
Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

EPA Hazardous Waste Code(s): U092

14. Transport information

US Department of Transportation
UN/NA Number: UN 1297
Proper Shipping Name: Trimethylamine, aqueous solution [with not more than 50 percent trimethylamine by mass]
Hazard class: 3
Subsidiary hazard: 8
Packing Group: II
Reportable Quantity (RQ): 100 lb/45kg

Mexico Transport Information
UN-No.: UN 1297
Proper Shipping Name: Trimethylamine, aqueous solution [with not more than 50 percent trimethylamine by mass]
Hazard Class: 3
Subsidiary Risk: 8
Packing Group: II
Emergency Response Guide: 132

15. Regulatory Information

US State Regulations
Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):
U.S. FEDERAL REGULATIONS

Environmental Regulations:

TRIMETHYLAMINE 75-50-3
Pennsylvania Listed
New York Listed
New Jersey Listed
Illinois Listed
Massachusetts Listed
Rhode Island Listed

INTERNATIONAL REGULATIONS

International Inventories
Listed on the chemical inventories of the following countries or qualifies for an exemption:
Australia (AICS)
China (IECSC)
Canada (DSL)
Europe (EINECS)
Korea (KECI)
Philippines (PICCS)
Japan (ENCS)
United States (TSCA)

16. Other information

NFPA: Health: 3 Flammability: 4 Instability: 0
HMIS: Health: 3 Flammability: 4 Physical Hazard: 0

Prepared By
Product Stewardship Department
Celanese
Safety Data Sheet

<table>
<thead>
<tr>
<th>Product name</th>
<th>Trimethylamine, aqueous</th>
</tr>
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<tbody>
<tr>
<td>MSDS number</td>
<td>80289</td>
</tr>
<tr>
<td>Revision Number</td>
<td>0</td>
</tr>
<tr>
<td>Revision Date</td>
<td>Mar.19.2010</td>
</tr>
<tr>
<td>Issuing date</td>
<td>Jun.04.2015</td>
</tr>
</tbody>
</table>

For more information, other material safety data sheets or technical data sheets please consult the Celanese homepage (www.celanese.com)

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 1907/2006/EC indicates that no data meeting these requirements is available.

Other Information:
Observe national and local legal requirements
Changes against the previous version are marked by ***

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