SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Trimethylamine solution
Product Number: W550132
Brand: Aldrich

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

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
- Flammable liquids (Category 2), H225
- Acute toxicity, Inhalation (Category 4), H332
- Skin irritation (Category 2), H315
- Serious eye damage (Category 1), H318
- Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger
Hazard statement(s)
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Precautionary statement(s)
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 + P310 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/ doctor.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Formula: \( \text{C}_3\text{H}_9\text{N} \)
Molecular weight: 59.11 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-propanediol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>57-55-6</td>
<td>&gt;= 70 - &lt; 90 %</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-338-0</td>
<td></td>
</tr>
<tr>
<td>Registration number</td>
<td>01-2119456809-23-XXXX</td>
<td></td>
</tr>
<tr>
<td>trimethylamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>75-50-3</td>
<td>Flam. Gas 1; Press. Gas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;= 20 - &lt; 30</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.
Handle and open container with care.

Storage class
7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredients with workplace control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>1,2-propanediol</td>
</tr>
<tr>
<td>trimethylamine</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.

---

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>a) Appearance</th>
<th>Form: liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>-20 °C (-4 °F) - closed cup</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Density</td>
<td>0.914 g/cm³</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>s) Explosive properties</td>
<td>Not classified as explosive.</td>
</tr>
<tr>
<td>t) Oxidizing properties</td>
<td>none</td>
</tr>
</tbody>
</table>

**9.2 Other safety information**
No data available
SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
Zinc, Oxidizing agents, Strong oxidizing agents, Copper, Acid chlorides, Acid anhydrides, Reducing agents, Chloroformates, Brass, Magnesium, Tin/tin oxides, Mercury/mercury oxides.

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity
Oral: No data available
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Inhalation: No data available
Acute toxicity estimate Inhalation - 4 h - 18004 ppm - gas (Calculation method)
Symptoms: Possible symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract
Acute toxicity estimate Dermal - 3,333 mg/kg (Calculation method)

Skin corrosion/irritation
Mixture causes skin irritation.

Serious eye damage/eye irritation
Mixture causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
Mixture may cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

### 11.2 Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea, Gastrointestinal disturbance, Vomiting, Central nervous system depression

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

#### Components

**1,2-propanediol**

**Acute toxicity**
LD50 Oral - Rat - male and female - 22,000 mg/kg
Remarks: (ECHA)

Inhalation: No data available
LD50 Dermal - Rabbit - > 2,000 mg/kg
Remarks: (ECHA)

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Result: negative
Remarks: (ECHA)
Species: Mouse - male - Bone marrow
Result: negative
Remarks: (ECHA)
Species: Rat - male - Bone marrow
Result: negative
Remarks: (ECHA)
Species: Rat - male
Result: negative
Remarks: (ECHA)

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**

**Aspiration hazard**
No data available

**trimethylamine**

**Acute toxicity**
Oral: No data available
LC50 Inhalation - Rat - male - 4 h - 3500 ppm - gas
Remarks: (ECHA)
LD50 Dermal - Rat - male and female - > 5,000 mg/kg
(OECD Test Guideline 402)
No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: slight irritation
Remarks: (ECHA)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Causes burns.
Remarks: (ECHA)
Risk of corneal clouding.

**Respiratory or skin sensitization**
No data available
**Germ cell mutagenicity**  
Test Type: Ames test  
Test system: S. typhimurium  
Result: negative  
Test Type: gene mutation test  
Test system: mouse lymphoma cells  
Result: negative  

**Carcinogenicity**  
No data available  

**Reproductive toxicity**  
No data available  

**Specific target organ toxicity - single exposure**  
May cause respiratory irritation.  

**Specific target organ toxicity - repeated exposure**  

**Aspiration hazard**  
No data available

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**SECTION 12: Ecological information**

**12.1 Toxicity**

**Mixture**  
No data available

**12.2 Persistence and degradability**  
No data available

**12.3 Bioaccumulative potential**  
No data available

**12.4 Mobility in soil**  
No data available

**12.5 Results of PBT and vPvB assessment**  
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Endocrine disrupting properties**  
No data available

**12.7 Other adverse effects**  
No data available

**Components**

**1,2-propanediol**

Toxicity to fish  
static test LC50 - Oncorhynchus mykiss (rainbow trout) - 40,613 mg/l - 96 h  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates  
static test LC50 - Ceriodaphnia dubia (water flea) - 18,340 mg/l - 48 h  
(US-EPA)
Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 19,000 mg/l - 96 h (OECD Test Guideline 201)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria NOEC - Pseudomonas putida - > 20,000 mg/l - 18 h (ECHA)

Toxicity to bacteria static test EC50 - Pseudomonas putida - 208 mg/l - 17 h (DIN 38421 TEIL 8)

trimethylamine

Toxicity to bacteria semi-static test LC50 - Oryzias latipes (Orange-red killifish) - > 100 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to fish semi-static test LC50 - Oryzias latipes (Orange-red killifish) - > 100 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 28 mg/l - 48 h (OECD Test Guideline 202)

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 1993  Class: 3  Packing group: II
Proper shipping name: Flammable liquids, n.o.s. (trimethylamine)
Reportable Quantity (RQ): 400 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1993  Class: 3  Packing group: II
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (trimethylamine)

IATA
UN number: 1993  Class: 3  Packing group: II
Proper shipping name: Flammable liquid, n.o.s. (trimethylamine)

SECTION 15: Regulatory information
**SARA 302 Components**
This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information**

**Further information**
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.3          Revision Date: 02/10/2022          Print Date: 10/07/2023