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

1.1. Product identifier

Product form : Mixture
Product name : Monomethylamine (0.0001% - 0.9999%) in Air
Product code : SG-2002-02394

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

Use of the substance/mixture : Test gas/Calibration gas.

1.3. Details of the supplier of the safety data sheet

Air Liquide
2700 Post Oak Boulevard
Houston, TX 77056 - USA
T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US) : Compressed gas
Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

| GHS04 |

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) :
H280 - Contains gas under pressure; may explode if heated
CGA-HG24 - Supports combustion.
Precautionary statements (GHS-US) :
P202 - Do not handle until all safety precautions have been read and understood
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P403 - Store in a well-ventilated place
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG06 - Close valve after each use and when empty
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG21 - Open valve slowly

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Not applicable
**Monomethylamine (0.0001% - 0.9999%) in Air**

**Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air</td>
<td>(CAS No) 132259-10-0</td>
<td>99.0001 - 99.9999</td>
<td>Compressed gas, H280</td>
</tr>
<tr>
<td>Methylamine</td>
<td>(CAS No) 74-89-5</td>
<td>0.0001 - 0.9999</td>
<td>Flam. Gas 1, H220, Liquefied gas, H280, Acute Tox. 4 (Inhalation:gas), H332, Skin Irrit. 2, H315, Eye Dam. 1, H318, STOT SE 3, H335</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

**SECTION 4: First aid measures**

4.1. Description of first aid measures

First-aid measures after inhalation: Adverse effects not expected from this product.

First-aid measures after skin contact: Adverse effects not expected from this product.

First-aid measures after eye contact: Adverse effects not expected from this product.

First-aid measures after ingestion: Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation: Adverse effects not expected from this product.

Symptoms/injuries after skin contact: Adverse effects not expected from this product.

Symptoms/injuries after eye contact: Adverse effects not expected from this product.

Symptoms/injuries after ingestion: Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration: Not known.

Chronic symptoms: Adverse effects not expected from this product.

4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

**SECTION 5: Firefighting measures**

5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard: The product is not flammable.

Explosion hazard: Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: None known.

5.3. Advice for firefighters

Firefighting instructions: In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.

Protection during firefighting: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

**SECTION 6: Accidental release measures**

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Ensure adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment consistent with the site emergency plan.


6.1.2. For emergency responders

Protective equipment: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.

Emergency procedures: Evacuate and limit access. Ventilate area.
6.2. Environmental precautions
Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up
For containment: Try to stop release if safe to do so.
Methods for cleaning up: Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections
See also Sections 8 and 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Additional hazards when processed: Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
Hygiene measures: Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Comply with applicable regulations.
Storage conditions: Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.
Incompatible products: None known.
Incompatible materials: Flammable materials.

7.3. Specific end use(s)
See Section 1.2.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>Monomethylamine (0.0001% - 0.9999%) in Air</th>
<th>Methylamine (74-89-5)</th>
<th>Compressed air (132259-10-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACGIH</td>
<td>OSHA</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>ACGIH TWA (ppm)</td>
<td>ACGIH STEL (ppm)</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td></td>
<td>5 ppm</td>
<td>15 ppm</td>
<td>12 mg/m³</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider work permit system e.g. for maintenance activities.
Skin and body protection: Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
Respiratory protection: None necessary during normal and routine operations. See Sections 5 & 6.
Thermal hazard protection: None necessary during normal and routine operations.
Environmental exposure controls: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Gas</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, colorless gas.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>ammonia-like</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable - not flammable</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>See Section 2.1 and 2.2</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Not applicable - not flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Supports combustion.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not applicable - not flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>Not applicable for gas-mixtures.</td>
</tr>
<tr>
<td>Relative gas density</td>
<td>Similar to air</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Can form explosive mixtures with flammable materials.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Flammable materials.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity: Not classified
**Monomethylamine (0.0001% - 0.9999%) in Air**

**Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Methylamine (74-89-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LC50 inhalation rat (mg/l)</strong></td>
<td>2.9 mg/l/4h</td>
</tr>
<tr>
<td><strong>LC50 inhalation rat (ppm)</strong></td>
<td>3500 ppm/4h</td>
</tr>
<tr>
<td><strong>ATE US (gases)</strong></td>
<td>4500.000 ppmV/4h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compressed air (132259-10-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LC50 inhalation rat (ppm)</strong></td>
<td>820000 ppm/4h</td>
</tr>
<tr>
<td><strong>ATE US (gases)</strong></td>
<td>620000.000 ppmV/4h</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Not classified

**Serious eye damage/irritation**: Not classified

**Respiratory or skin sensitization**: Not classified

**Germ cell mutagenicity**: Not classified

**Carcinogenicity**: Not classified

**Reproductive toxicity**: Not classified

**Specific target organ toxicity (single exposure)**: Not classified

**Specific target organ toxicity (repeated exposure)**: Not classified

**Aspiration hazard**: Not classified

**Symptoms/injuries after inhalation**: Adverse effects not expected from this product.

**Symptoms/injuries after skin contact**: Adverse effects not expected from this product.

**Symptoms/injuries after eye contact**: Adverse effects not expected from this product.

**Symptoms/injuries after ingestion**: Ingestion is not considered a potential route of exposure.

**Symptoms/injuries upon intravenous administration**: Not known.

**Chronic symptoms**: Adverse effects not expected from this product.

### SECTION 12: Ecological information

#### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Methylamine (74-89-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EC50 Daphnia 1</strong></td>
<td>163 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td><strong>EC50 Daphnia 2</strong></td>
<td>147 - 180 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compressed air (132259-10-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Persistence and degradability</strong></td>
<td>The substance is biodegradable. Unlikely to persist.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methylamine (74-89-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Log Pow</strong></td>
<td>-0.57</td>
</tr>
<tr>
<td><strong>BCF fish 1</strong></td>
<td>2860 - 6910</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**: Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

<table>
<thead>
<tr>
<th>Compressed air (132259-10-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Log Pow</strong></td>
<td>Not applicable for inorganic gases.</td>
</tr>
<tr>
<td><strong>Bioaccumulative potential</strong></td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Methylamine (74-89-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecology - soil</strong></td>
<td>Because of its high volatility, the product is unlikely to cause ground or water pollution.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compressed air (132259-10-0)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecology - soil</strong></td>
<td>No ecological damage caused by this product.</td>
</tr>
</tbody>
</table>
Monomethylamine (0.0001% - 0.9999%) in Air
Safety Data Sheet
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12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1956 Compressed gas, n.o.s. (Monomethylamine, Air)

UN-No.(DOT) : UN1956

Proper Shipping Name (DOT) : Compressed gas, n.o.s.

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Packaging Exceptions (49 CFR 173.xxx) : 306;307

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 1956, 2.2, (E)

Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 20

Classification code (ADR) : 1A

Hazard labels (ADR) : 2.2 - Non-flammable compressed gas

Orange plates :

Tunnel restriction code (ADR) : E

Limited quantities (ADR) : 120ml
Monomethylamine (0.0001% - 0.9999%) in Air

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Excepted quantities (ADR) : E1

Transport by sea
UN-No. (IMDG) : 1956
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.
Class (IMDG) : 2 - Gases

Air transport
UN-No.(IATA) : 1956
Proper Shipping Name (IATA) : COMPRESSED GAS, N.O.S.
Class (IATA) : 2

SECTION 15: Regulatory information

15.1. US Federal regulations
Methylamine (74-89-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
Methylamine (74-89-5)
Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification
Class A - Compressed Gas
Class B Division 1 - Flammable Gas
Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects
Class E - Corrosive Material

Compressed air (132259-10-0)
WHMIS Classification
Class A - Compressed Gas

EU-Regulations

Methylamine (74-89-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Methylamine (74-89-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the Canadian IDL (Ingredient Disclosure List)

Compressed air (132259-10-0)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)

15.3. US State regulations
Monomethylamine (0.0001% - 0.9999%) in Air
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Methylamine (74-89-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Indication of changes: Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.

Other information: This Safety Data Sheet is offered pursuant to OSHA’s Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Inhalation:gas)</th>
<th>Acute toxicity (inhalation:gas) Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed gas</td>
<td>Gases under pressure Compressed gas</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation Category 1</td>
</tr>
<tr>
<td>Flam. Gas 1</td>
<td>Flammable gases Category 1</td>
</tr>
<tr>
<td>Liquefied gas</td>
<td>Gases under pressure Liquefied gas</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>H220</td>
<td>Extremely flammable gas</td>
</tr>
<tr>
<td>H280</td>
<td>Contains gas under pressure; may explode if heated</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA’s Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation’s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.