**Section 1 - Product and Company Information**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>METHYLAMINE, ANHYDROUS, 98+%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>295531</td>
</tr>
<tr>
<td>Brand</td>
<td>ALDRICH</td>
</tr>
<tr>
<td>Company</td>
<td>Sigma-Aldrich Canada, Ltd</td>
</tr>
<tr>
<td>Street Address</td>
<td>2149 Winston Park Drive</td>
</tr>
<tr>
<td>City, State, Zip, Country</td>
<td>Oakville ON L6H 6J8 CA</td>
</tr>
<tr>
<td>Technical Phone:</td>
<td>9058299500</td>
</tr>
<tr>
<td>Emergency Phone:</td>
<td>800-424-9300</td>
</tr>
<tr>
<td>Fax:</td>
<td>9058299292</td>
</tr>
</tbody>
</table>

**Section 2 - Composition/Information on Ingredient**

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHYLAMINE</td>
<td>74-89-5</td>
<td>No</td>
</tr>
<tr>
<td>Formula</td>
<td>CH5N</td>
<td></td>
</tr>
<tr>
<td>RTECS Number:</td>
<td>PF6300000</td>
<td></td>
</tr>
</tbody>
</table>

**Section 3 - Hazards Identification**

**EMERGENCY OVERVIEW**

**HMIS RATING**
- HEALTH: 3
- FLAMMABILITY: 4
- REACTIVITY: 0

**NFPA RATING**
- HEALTH: 3
- FLAMMABILITY: 4
- REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

**Section 4 - First Aid Measures**

**ORAL EXPOSURE**
- If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

INFORMATION FOR PHYSICIAN
Symptoms may be delayed. Keep under medical observation.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
Flammable Hazards: Yes

EXPLOSION HAZARDS
May form explosive mixtures with air. Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

FLASH POINT
< -22 °F  < -30 °C  Method: closed cup

EXPLOSION LIMITS
Lower: 4.9 %  Upper: 20.8 %

AUTOIGNITION TEMP
430 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Extremely flammable. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area and keep personnel upwind. Shut off all sources of ignition. Shut off leak if there is no risk. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors.
Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Store in a cool dry place. Cylinder temperature should not exceed 125°F (52°C).

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

WORK PRACTICES
Store and use with adequate ventilation.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.
Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>STEL</td>
<td>15 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>5 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>MSHA Standard-air</td>
<td>TWA</td>
<td>10 PPM (12 MG/M3)</td>
</tr>
<tr>
<td>USA</td>
<td>OSHA.</td>
<td>PEL</td>
<td>8H TWA 10 PPM (12 MG/M3)</td>
</tr>
</tbody>
</table>

New Zealand OEL
Remarks: check ACGIH TLV

| USA     | NIOSH  | TWA  | 10 PPM |

EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td>NDS</td>
<td>5 MG/M3</td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td>NDSCh</td>
<td>15 MG/M3</td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td>NDSP</td>
<td>-</td>
</tr>
</tbody>
</table>

Section 9 - Physical/Chemical Properties

Appearance
Physical State: Compressed gas
Color: Colorless
Form: Clear liquid

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>31.06 AMU</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>14</td>
<td>20 °C Concentration: 100 g/l</td>
</tr>
<tr>
<td>BP/BP Range</td>
<td>-6.3 °C</td>
<td>760 mmHg</td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>-93 °C</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>1395.9 mmHg</td>
<td>20 °C</td>
</tr>
</tbody>
</table>
Vapor Density           1.08 g/l            20 °C
Saturated Vapor Conc.   N/A
SG/Density              0.7 g/cm3
Bulk Density            N/A
Odor Threshold          10 ppm
Volatile%               N/A
VOC Content             N/A
Water Content           < 0.2 %
Solvent Content         N/A
Evaporation Rate        N/A
Viscosity               N/A
Surface Tension         19.19 mN/m          25 °C
Partition Coefficient   Log Kow: -0.713
Decomposition Temp.     N/A
Flash Point             < -22 °F < -30 °C   Method: closed cup
Explosion Limits        Lower: 4.9 %
                        Upper: 20.8 %
Flammability            N/A
Autoignition Temp       430 °C
Refractive Index        N/A
Optical Rotation        N/A
Miscellaneous Data      N/A
Solubility              Other Solvents: SOLUBLE IN ETHANOL ACETONE,
                        MISCEIBLE IN ETHER

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Acids, Acid chlorides, Acid anhydrides,
Oxidizing agents, Chloroformates, Phosphorus halides.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide,
Nitrogen oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes burns.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes burns. Lachrymator.
Inhalation: May be fatal if inhaled. Material is extremely
destructive to the tissue of the mucous membranes and upper
respiratory tract.
Ingestion: Toxic if swallowed. Ingestion can cause immediate
burning pain in the mouth, throat, abdomen; severe swelling of
the larynx and skeletal paralysis affecting the ability to
breathe, circulatory shock and convulsions.

SIGNS AND SYMPTOMS OF EXPOSURE
Material is extremely destructive to tissue of the mucous
membranes and upper respiratory tract, eyes, and skin.
Inhalation may result in spasm, inflammation and edema of the
larynx and bronchi, chemical pneumonitis, and pulmonary edema.
Symptoms of exposure may include burning sensation, coughing,
wheezing, laryngitis, shortness of breath, headache, nausea, and
vomiting.

TOXICITY DATA

Oral
Rat
100 mg/kg
LD50

Inhalation
Rat
448 ppm
LC50

Inhalation
Mouse
2,400 mg/m3
LC50

Inhalation
Mammal
2,400 mg/m3
LC50

IRRITATION DATA

Skin
Rabbit
40 %
Remarks: Severe irritation effect

Skin
Guinea pig
100 mg
Remarks: Open irritation test

CHRONIC EXPOSURE - MUTAGEN

Species: Rat
Route: Inhalation
Dose: 10 UG/M3
Mutation test: Dominant lethal test

Species: Mouse
Dose: 3 MMOL/L
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and
local environmental regulations.

APPROPRIATE METHOD OF DISPOSAL OF CONTAMINATED PACKAGING
Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

Section 14 - Transport Information

DOT
Proper Shipping Name: Methylamine, anhydrous
UN#: 1061
Class: 2.1
Packing Group: None
Hazard Label: Flammable gas
PIH: Not PIH

IATA
Proper Shipping Name: Methylamine, anhydrous
IATA UN Number: 1061
Hazard Class: 2.1
Not Allowed - Aircraft: Cargo aircraft only. Not permitted on passenger aircraft.

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: F+ Xn
R: 12 20 37/38 41
Risk Statements: Extremely flammable. Harmful by inhalation. Irritating to respiratory system and skin. Risk of serious damage to eyes.
S: 16 26 29
Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Do not empty into drains.

US CLASSIFICATION AND LABEL TEXT
Safety Statements: Keep in a cool place. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap-suds. Do not empty into drains. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No
Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.