1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name: Methane

Product Number: 295477
Brand: Aldrich
Index-No.: 601-001-00-4

CAS-No.: 74-82-8

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA

Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Compressed gas), H280
Simple Asphyxiant,

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)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none
3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| Formula | CH₄ |
| Molecular weight | 16.04 g/mol |
| CAS-No. | 74-82-8 |
| EC-No. | 200-812-7 |
| Index-No. | 601-001-00-4 |

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>Flam. Gas 1; Press. Gas Compr. Gas; SA ; H220, H280,</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. 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

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.
6.2 **Environmental precautions**  
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**  
Clean up promptly by sweeping or vacuum.

6.4 **Reference to other sections**  
For disposal see section 13.

### 7. HANDLING AND STORAGE

#### 7.1 Precautions for safe handling  
Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

#### 7.2 Conditions for safe storage, including any incompatibilities  
Keep container tightly closed in a dry and well-ventilated place. Contents under pressure. Storage class (TRGS 510): Gases

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

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters  
**Components with workplace control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>74-82-8</td>
<td>TWA</td>
<td>1.000.00000  ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks  
Central Nervous System impairment  
Cardiac sensitization  
See Appendix F: Minimal Oxygen Content  
Asphyxia  
2014 Adoption

<table>
<thead>
<tr>
<th>TWA</th>
<th>0.100000 mg/m3</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
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<tr>
<td>‘Ca’ in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A &amp; C (Aldehydes).</td>
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See Appendix F: Minimal Oxygen Content  
Asphyxia

#### 8.2 Exposure controls  
**Appropriate engineering controls**  
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**  
**Eye/face protection**  
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 60 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impermeable clothing. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: gaseous
   Colour: colourless
b) Odour No data available
c) Odour Threshold No data available
d) pH No data available
e) Melting point/freezing point Melting point/range: -183 °C (-297 °F) - lit.
f) Initial boiling point and boiling range -161 °C (-258 °F) - lit.
g) Flash point -187.99 °C (-306.38 °F) - closed cup
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower flammability or explosive limits
   Upper explosion limit: 15 % (V)
   Lower explosion limit: 5 % (V)
k) Vapour pressure No data available
l) Vapour density 0.55 - (Air = 1.0)
m) Relative density  0.716 g/cm³ at 25 °C (77 °F)

n) Water solubility  3.5 g/l at 17 °C (63 °F)

o) Partition coefficient: n-octanol/water  No data available

p) Auto-ignition temperature  No data available

q) Decomposition temperature  No data available

r) Viscosity  No data available

s) Explosive properties  No data available

t) Oxidizing properties  No data available

9.2 Other safety information
Relative vapour density  0.55 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

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

NTP: No component 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 identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PA1490000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION
12.1 Toxicity
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 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION
DOT (US)
UN number: 1971 Class: 2.1
Proper shipping name: Methane, compressed
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

**IMDG**
- UN number: 1971  
- Class: 2.1  
- EMS-No: F-D, S-U  
- Proper shipping name: METHANE, COMPRESSED

**IATA**
- UN number: 1971  
- Class: 2.1  
- Proper shipping name: Methane, compressed  
- IATA Passenger: Not permitted for transport

15. **REGULATORY INFORMATION**

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**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

**Massachusetts Right To Know Components**
- Methane  
  - CAS-No.: 74-82-8  
  - Revision Date: 1993-04-24

**Pennsylvania Right To Know Components**
- Methane  
  - CAS-No.: 74-82-8  
  - Revision Date: 1993-04-24

**New Jersey Right To Know Components**
- Methane  
  - CAS-No.: 74-82-8  
  - Revision Date: 1993-04-24

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. **OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**
- May displace oxygen and cause rapid suffocation.
- Flammable gases
- Extremely flammable gas.
- Gases under pressure; may explode if heated.
- Simple Asphyxiant

**HMIS Rating**
- Health hazard: 0  
- Chronic Health Hazard:  
- Flammability: 4  
- Physical Hazard: 3

**NFPA Rating**
- Health hazard: 0  
- Fire Hazard: 4  
- Reactivity Hazard: 0
Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

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