1 Identification of substance:

Product details:

Product name: Methane

Stock number: 20919

Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:
During normal hours the Health, Safety and Environmental Department.
After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)
Methane (CAS# 72-82-8), 100%

Identification number(s):
EINECS Number: 200-812-7
EU Number: 601-001-00-4

3 Hazards identification

Hazard description:

F+ Extremely flammable

Information pertaining to particular dangers for man and environment
R 12 Extremely flammable.

Classification system

HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

Health (acute effects) = 1
Flammability = 4
Reactivity = 0

4 First aid measures

After inhalation Supply fresh air; consult doctor in case of complaints.

5 Fire fighting measures

Suitable extinguishing agents
Stop flow of gas. Do not extinguish fire unless flow of gas can be stopped. Use water spray to keep container cool.

(Contd. on page 2)
6 Accidental release measures

Person-related safety precautions: Keep away from ignition sources
Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.
Measures for cleaning/collecting: No special measures required.
Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.

7 Handling and storage

Handling
Information for safe handling:
Keep container tightly sealed.
Keep away from heat and direct sunlight.
Ensure good ventilation at the workplace.
Open and handle container with care.
Information about protection against explosions and fires:
Keep ignition sources away.
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.

Storage
Requirements to be met by storerooms and receptacles:
Store in a cool location.
Information about storage in one common storage facility:
Store away from oxidizing agents.
Store away from halogens.
Store away from air.
Further information about storage conditions:
Protect from heat and direct sunlight.
Maximum storage temperature: 52 degrees C

8 Exposure controls and personal protection

Components with limit values that require monitoring at the workplace:
Not required.
Additional information: No data

Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Breathing equipment:
Use suitable respiratory protective device in case of insufficient ventilation.
Eye protection: Safety glasses
9 Physical and chemical properties:

**General Information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Gaseous</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>-182.48°C (-296°F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>-164°C (-263°F)</td>
</tr>
<tr>
<td>Sublimation temperature / start</td>
<td>Not determined</td>
</tr>
<tr>
<td>Flash point</td>
<td>-221°C (-366°F)</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Extremely flammable</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>536°C (997°F)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Explosion limits:</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>5 Vol %</td>
</tr>
<tr>
<td>Upper</td>
<td>15 Vol %</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Density at 20°C (68°F):</td>
<td>0.717 g/cm³</td>
</tr>
<tr>
<td>Solubility in / Miscibility with</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**
- Oxidizing agents
- Halogens
- Interhalogens
- Oxygen

**Dangerous reactions**
- Reacts with halogenated compounds
- Reacts violently with interhalogens.
- Reacts with oxidizing agents
- Reacts with oxygen

**Dangerous products of decomposition:** None known.

11 Toxicological information

**Acute toxicity:**

**Primary irritant effect:**
- on the skin: Generally the product does not irritate the skin.
- on the eye: No irritating effect.

**Sensitization:** No sensitizing effects known.
Material Safety Data Sheet
acc. to OSHA and ANSI

Product name: Methane

Subacute to chronic toxicity:
Methane gas acts as an asphyxiant, displacing air. Exposure can cause
nausea, headache and vomiting.

Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this
substance is not fully known.
No classification data on carcinogenic properties of this material is
available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

General notes:
Do not allow material to be released to the environment without proper
governmental permits.

13 Disposal considerations

Product:
Recommendation
Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:

Hazard class: 2.1
Identification number: UN1971
Proper shipping name (technical name): METHANE, COMPRESSED
Label 2.1

Land transport ADR/RID (cross-border)

ADR/RID class: 2 1F Gases
Danger code (Kemler): 23
UN-Number: 1971
Description of goods: 1971 METHANE, COMPRESSED

Maritime transport IMDG:

IMDG Class: 2.1
UN Number: 1971

(Contd. on page 5)
Product name: Methane

2.1
Proper shipping name: METHANE, COMPRESSED

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 2.1
UN/ID Number: 1971
Label 2.1
Proper shipping name: METHANE, COMPRESSED

15 Regulations

Product related hazard informations:

Hazard symbols:
F+ Extremely flammable

Risk phrases:
12 Extremely flammable.

Safety phrases:
9 Keep container in a well-ventilated place.
16 Keep away from sources of ignition - No smoking.
33 Take precautionary measures against static discharges.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:
For use only by technically qualified individuals.

16 Other information:
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Darrell R. Sanders

USA