**Section 1 - IDENTIFICATION**

**Product Identifier:** Methane

**Trade Names/Synonyms**
- FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; R50

**Chemical Family**
- hydrocarbons, gas

**Product Use**
- industrial

**Restrictions on Use**
- None known.

**Section 2 - HAZARDS IDENTIFICATION**

**GHS Classification**
- Flammable gas, Category 1
- Gas under pressure, Compressed gas

**GHS LABEL ELEMENTS**

**Symbol(s)**

![Symbol](image)

**Signal Word**
- DANGER

**Hazard Statement(s)**
- Extremely flammable gas
- Contains gas under pressure; may explode if heated

**Precautionary Statement(s)**

**Prevention**
- Keep away from heat, sparks, open flame, and hot surfaces - No smoking.

**Response**
- Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

**Storage**
- Store in a well-ventilated place. Protect from sunlight.

**Other Hazards which do not Result in Classification**
- May cause asphyxia. May cause frostbite upon sudden release of compressed gas.
**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-82-8</td>
<td>METHANE</td>
<td>100</td>
</tr>
</tbody>
</table>

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Aliphatic hydrocarbon gases (Alkane [C1-C4]).

**Section 4 - FIRST AID MEASURES**

**Inhalation**
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**Skin**
If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

**Eyes**
Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**Ingestion**
If a large amount is swallowed, get medical attention.

**Note to Physicians**
For inhalation, consider oxygen.

**Symptoms: Immediate**
frostbite, suffocation

**Symptoms: Delayed**
No information on significant adverse effects.

**Section 5 - FIRE FIGHTING MEASURES**

See Section 9 for Flammability Properties

**Specific Hazards Arising from the Chemical**
Severe fire hazard. Severe explosion hazard. Pressurized containers may rupture or explode if exposed to sufficient heat. Vapor/air mixtures are explosive above flash point. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

**Extinguishing Media**
carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

**Unsuitable Extinguishing Media**
None known.

**Protective Equipment and Precautions for Firefighters**
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.
Fire Fighting Measures
Move container from fire area if it can be done without risk. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

Personal Precautions
Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions
Avoid release to the environment.

Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

Cleanup Methods
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray.

**Section 7 - HANDLING AND STORAGE**

Handling Procedures
Wash thoroughly after handling.

Storage Procedures

Incompatibilities combustible materials, halogens, oxidizing materials

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

Component Exposure Limits
METHANE (74-82-8)
ACGIH: 1000 ppm TWA

Component Biological Limit Values
There are no biological limit values for any of this product's components.

Engineering Controls
Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face
For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing
For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.
Glove Recommendations
For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

Respiratory Protection
Under conditions of frequent use or heavy exposure, respiratory protection may be needed.
Respiratory protection is ranked in order from minimum to maximum.
Consider warning properties before use.

For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES **

| Physical State: | Gas |
| Color:          | colorless |
| Odor:           | odorless |
| Taste:          | tasteless |
| Melting/Freezing Point: | -183 °C |
| Flash Point:    | -223 °C |
| Evaporation Rate: | Not available |
| Henry's Law Constant: | 0.00045830 atm-m3/mol |
| Density:        | 0.717 g/L @ 0 °C |
| KOW:            | 724.44 estimated from water solubility |
| Coeff. Water/Oil Dist: | Not available |
| Auto Ignition:  | 537 °C |
| Molecular Weight: | 16.04 |

** Section 10 - STABILITY AND REACTIVITY **

Chemical Stability
Stable at normal temperatures and pressure.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Possibility of Hazardous Reactions
Will not polymerize.

Incompatible Materials
combustible materials, halogens, oxidizing materials

Decomposition Products
oxides of carbon

Solvent Solubility
Soluble: alcohol, ether, benzene, organic solvents

KOC: 2192.80 estimated from water solubility
Viscosity: 0.01118 cP @27 °C
Molecular Formula: C-H4
**Section 11 - TOXICOLOGICAL INFORMATION**

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

**METHANE (74-82-8)**

**Inhalation:** 500000 ppm/2 hour Inhalation Mouse LC50; 326 gm/m3/2 hour Inhalation Mouse LC50

Acute Toxicity Level

**METHANE (74-82-8)**

**Slightly Toxic:** inhalation

Immediate Effects

frostbite, suffocation

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data

No data available.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

No data available.

Tumorigenic Data

No data available.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure

No data available.

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.
**Section 12 - ECOLOGICAL INFORMATION**

**Component Analysis - Aquatic Toxicity**
No LOIL ecotoxicity data are available for this product's components.

**Persistence and Degradability**
No data available.

**Bioaccumulative Potential**
No data available.

**Mobility in Environmental Media**
No data available.

**Section 13 - DISPOSAL CONSIDERATIONS**

**Disposal Methods**
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.
Hazardous Waste Number(s): D001.

**Component Waste Numbers**
The U.S. EPA has not published waste numbers for this product's components.

**Section 14 - TRANSPORT INFORMATION**

**US DOT Information**
Shipping Name: Methane, compressed
UN/NA #: UN1971 Hazard Class: 2.1
Required Label(s): 2.1

**IMDG Information**
Shipping Name: Methane, compressed
UN #: UN1971 Hazard Class: 2.1

**Section 15 - REGULATORY INFORMATION**

**Component Analysis**

**U.S. Federal Regulations**
None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

**SARA 311/312 Hazardous Categories**

Acute Health: Yes Chronic Health: No Fire: Yes Pressure: Yes Reactive: No

**U.S. State Regulations**
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
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</thead>
<tbody>
<tr>
<td>METHANE</td>
<td>74-82-8</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not regulated under California Proposition 65

**Component Analysis - Inventory**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>US</th>
<th>CA</th>
<th>EU</th>
<th>AU</th>
<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
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</thead>
<tbody>
<tr>
<td>METHANE</td>
<td>74-82-8</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Section 16 - OTHER INFORMATION**
Material Name: Methane

NFPA Ratings: Health: 2 Fire: 4 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

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