# MATERIAL SAFETY DATA SHEET
# **Natural Gas**

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## SECTION #1 - IDENTIFICATION

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|---|---|
| Product: | Natural Gas |
| CAS Number: | 74-82-8 |
| Chemical Family: | Aliphatic Hydrocarbon, Alkane Series |
| Synonyms: | Methane, Fuel Gas, Marsh Gas |

## SECTION #2 - HAZARDOUS CHEMICAL COMPONENTS

| % | Material | CAS# | Exposure Limit |
|---|---|---|---|
| > 90 | Methane | 74-82-8 | Simple asphyxiant (ACGIH) |
| < 5 | Ethane | 74-84-0 | Simple asphyxiant (ACGIH) |
| < 1 | Propane | 74-98-6 | 1000 ppm PEL (OSHA)<br>Simple asphyxiant (ACGIH) |

This product is hazardous according to OSHA, 29 CFR 1910.1200. This product normally contains no hazardous components, other than ethane, as defined in OSHA 29 CFR §1910.1200 (i.e., greater than 1%). This product may contain small amounts of heavier hydrocarbons. This product and/or components present at concentrations greater than 0.1% are not carcinogenic according to OSHA, IARC, or NTP. Components of this product are normally within the ranges listed above, however, depending on the geographical source, gas composition may vary.

## SECTION #3 - PHYSICAL DATA

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| Boiling Point: | -259 F, 162 C |
| Vapor Pressure: | N/A - Gas |
| Gas Density (Air = 1) | 0.6 |
| Specific Gravity: | N/A - Gas |
| Solubility ($H_2O$): | Very slightly soluble |
| Evaporation Rate: | Gas at normal ambient conditions |
| Appearance: | Colorless gas at normal temperature |
| Odor: | Odorless. If the local utility company has added an odorant, then an unpleasant smell resembling that of rotten eggs or garlic. |

## SECTION #4 - FIRE FIGHTING & EXPLOSION DATA

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| Flash Point: | 306 F, 187.8 C |
| Autoignition: | 1004 F, 540 C |
| Flammable Limits in Air: | 5% (lower)<br>15% (upper) |
| Unusual Fire and Explosion Hazards: | This gas is extremely flammable and forms flammable mixtures with air. It will burn in the open or be explosive in confined spaces. Its vapors are lighter than air and will disperse. A hazard of re-ignition or explosion exists if flame is extinguished without stopping the gas flow. |
| Extinguishing Media: | Stop the flow of gas. Dry chemical, $CO_2$, or halon. Water can be used to cool the fire but may not extinguish the fire. |
| Special Fire Fighting Instructions: | Evacuate area upwind of source. Stop gas flow and extinguish fire. If gas source cannot be shut off immediately, equipment and surfaces exposed to the fire should be cooled with water to prevent overheating and explosions. Control fire until gas supply can be shut off. |

## SECTION #5 - HEALTH HAZARD DATA

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| Exposure Limits: | See Section # 2. |
| Effects of Single Overexposure: | |
| Swallowing: | This product is a gas at normal temperature/pressure. No potential for ingestion expected. Solid and liquefied forms of this material and pressurized gas can cause freeze burns. |
| Skin Absorption: | This material is not expected to be absorbed through the skin. Solid and liquefied forms of this material and pressurized gas can cause freeze burns. |
| Inhalation: | Exposure may produce rapid breathing, headache, dizziness, visual disturbances, muscular weakness, tremors, narcosis, unconsciousness, and death, depending on the concentration and duration of exposure. |
| Skin Contact: | Non-irritating, but solid and liquid forms of this material and pressurized gas can cause frostbite, blisters and redness. |
| Eye Contact: | This gas is non-irritating; but direct contact with liquefied/pressurized gas or frost particles may produce severe and possible permanent eye damage from freeze burns. |
| Effects of Repeated Overexposure: | |
| Medical Conditions Aggravated by Overexposure: | Personnel with pre-existing chronic respiratory diseases should avoid exposure to this material. |
| Emergency and First Aid Procedures: | |
| Swallowing: | This product is a gas at normal temperature/pressure and not expected to present a swallowing hazard. |
| Skin: | Frozen tissues should be flooded or soaked with warm water. DO NOT USE HOT WATER. Cryogenic burns that result in blistering or deeper tissue freezing should be promptly seen by a doctor. |
| Inhalation: | Immediately move personnel to area of fresh air. For respiratory distress, give air, oxygen, or administer CPR (Cardiopulmonary Resuscitation) if necessary. Obtain medical attention if breathing difficulties continue. |
| Eyes: | Methane gas is not expected to present an eye irritation hazard. If contacted by liquid/solid, immediately flush the eye(s) gently with warm water for at least 15 minutes. Seek medical attention if pain or redness persists. |

## SECTION #6 - REACTIVITY & POLYMERIZATION

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| Stability: | Stable |
| Conditions to Avoid: | High heat, open flames and other sources of ignition. Explosive reactions can occur between natural as and oxidizing agents. Spontaneous ignition with chlorine dioxide. |
| Incompatibility (materials to avoid): | Barium peroxide, chlorine dioxide and strong oxidizing agents. |
| Hazardous Combustion or Decomposition Products: | Combustion may produce carbon monoxide, carbon dioxide and other harmful substances. |
| Hazardous Polymerization: | None |

## SECTION #7 - SPILL, LEAK, & DISPOSAL PROCEDURES

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| Steps to be Taken in the Event of Spills, Leaks, or Release: | Eliminate all potential sources of ignition. Handling equipment and tools must be grounded to prevent sparking. Evacuate all non-essential personnel to an area upwind. Equip responders with proper protection equipment (as specified in Section # 8) and advise of hazards. Stop sources of release with non-sparking tools before attempting to put out any fire. Ventilate enclosed areas to prevent formation of flammable or oxygen-deficient atmospheres. Water spray may be used to cool equipment or reduce gas accumulation. |
| Waste Disposal Procedures: | Disposal of containerized gas may be disposal of a hazardous waste. Disposal should be made in accordance with all applicable federal, state, and local laws and regulations. |

## SECTION # 8 - SPECIAL PROTECTION MEASURES

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| Ventilation: | Local exhaust and general room ventilation may both be essential in work areas to prevent accumulation of explosive mixtures. If mechanical ventilation is used, electrical equipment must meet National Electric Code requirements. |
| Eye Protection: | Use chemical-type goggles and face shields when handling liquefied gases. Safety glasses and/or face shields are recommended when handling high-pressure cylinders and piping systems or whenever gases are discharged. |
| Skin Protection: | If there is a potential for contact with high concentrations of compressed gas, use insulated, impervious plastic or neoprene-coated canvas gloves and protective gear (apron, face shield, etc.) to protect hands and other skin areas. |
| Respiratory Protection: | For excessive gas concentrations, use only NIOSH/MSHA approved, self-contained breathing apparatus. |
| Work/Hygiene Practices: | Emergency eye wash fountains and safety showers for first aid treatment of potential freeze burns should be available in the vicinity of any significant exposure from compressed gas release. Personnel should not enter areas where the atmosphere is below 19.5 vol. % oxygen without special procedures/equipment. Respirator use should comply with OSHA 29 CFR 1910.134 or equivalent. |

## SECTION #9 - SPECIAL PRECAUTIONS - STORAGE & HANDLING

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| Storage and Handling Conditions: | Store and use cylinders and tanks in well-ventilated areas, away from heat and sources of ignition. No smoking near storage or use. Follow standard procedures for handling cylinders, tanks, and loading/unloading. See NFPA #58 and API 2510. Fixed storage containers must be grounded and bonded during transfer of product. |
| Naturally Occurring Radioactive Material (NORM): | This product may contain Naturally Occurring Radioactive Material (NORM) and customers should be aware of the potential for NORM within their processing system. The actual concentration of NORM in the product is dependent on the geographical source of the natural gas and storage time prior to its delivery. Process equipment (e.g., lines, filters, pumps and reaction units) may accumulate radioactive daughters and emit gamma radiation during operation. Equipment emitting gamma radiation may be presumed to be internally contaminated with alpha-emitting decay products that may be a hazard if inhaled or ingested. Consult applicable NORM regulations for worker protection guidelines and handling requirements before initiating maintenance operations that require opening contaminated equipment. |

## SECTION #10 - SHIPPING INFORMATION

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| Proper Shipping Name: | Methane, Compressed |
| Hazard Class: | 2.1 |
| DOT Identification Number: | UN1971 |
| DOT Shipping Label: | Flammable Gas (red) |

## SECTION #11 - REGULATORY INFORMATION

Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to state and federal reporting requirements. Consult those regulations applicable to your facility or operation.

**Federal Clean Water Act:**

Any spill or release of liquid oils associated with this product into “navigable waters” (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802). Also contact appropriate state and local regulatory agencies as required.

**CERCLA Section 103:**

The Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification to the National Response Center of a release of quantities of Hazardous Substances equal to or greater than the reportable quantities in 40 CFR §302.4. The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts natural gas, natural gas liquids and any indigenous components of such (e.g., benzene) from the CERCLA Section 103 reporting requirements.

**EPCRA Section 304:**

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires emergency planning based on Threshold Planning Quantities and release reporting based on reportable quantities in 40 CFR §355. There are no known components present in this product that would require reporting under this statute.

**EPCRA Sections 311/312:**

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires notification and annual reporting of materials for which maintenance of an MSDS is required. This product is classified under the following hazard categories: Immediate (acute) Health Hazard and Fire Hazard.

**EPCRA Section 313:**

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires submission of annual reports of the release of toxic chemicals that appear in 40 CFR §372. This product contains no chemicals subject to reporting requirements under this statute.

**Toxic Substances Control (TSCA) Status:**

The ingredients of this product are on the TSCA inventory.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

This information relates only to the material designed and may not be valid for such material used in combination with other materials or in any process. Such information is to the best of this Company's knowledge believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.