MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

RM Number: 8561
MSDS Number: 8561
RM Name: Natural Gas, Biogenic (> 95 % methane)

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Description: A unit of RM 8561 consists of a 50-milliliter stainless steel cylinder sealed with an all-metal seat in a bellows valve. Each cylinder contains about 10 mmol (almost 2 g) of gas compressed to about 5 MPa (800 psia).

Substance: Natural gas

Other Designations: Gas fuels, sweet natural gas, marathon natural gas

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Componant	CAS Number	EC Number (EINECS)	Nominal Concentration
Natural gas	8006-14-2	232-343-9	100 %

EC Classification: F+ Extremely Flammable

EC Risk: R12

EU Risk/Safety Phrases): Refer to Section 15 "Regulatory Information" (R12).

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 2 Fire = 4 Reactivity = 0

Major Health Hazards: Natural gas is a simple asphyxiant. Inhallation of the gas may result in difficulty breathing, dizziness, tingling sensations or nausea and vomiting.

Physical Hazards: Natural gas is extremely flammable. Cylinder may rupture or explode if exposed to heat or flame.

Potential Health Effects (Short Term Exposure)

Inhalation: May result in difficulty breathing, dizziness, tingling sensations, nausea and vomiting.

Skin Contact: Sudden release may result in frostbite.

Eye Contact: No information on significant adverse effects.

Ingestion: Ingestion of a gas is unlikely.

Listed as a Carcinogen/Potential Carcinogen

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

4. First Aid Measures

Inhalation: If breathing is difficult, remove to uncontaminated area. If not breathing, have qualified personnel give artificial respiration and seek immediate medical attention.

Skin Contact: In case of frostbite, immediately flush with plenty of luke warm water. Seek medical attention.

Eye Contact: Not applicable.

Ingestion: Not applicable.

5. Fire Fighting Measures

Fire and Explosion Hazards: Severe fire hazard. Vapor/air mixtures are explosive. Cylinder may rupture or explode if exposed to heat or flame.

Extinguishing Media: Regular dry chemical, carbon dioxide.

Fire Fighting: Move cylinder from fire area if it can be done without personal risk. Avoid inhalation of material. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): −180 **Method Used:** Not listed **Autoignition Temp (°C):** 482 – 670

Flammabillity Limits in Air (Volume %): **Upper:** 3.8 – 6.5 %

Lower: 13 – 17 %

6. Accidental Release Measures

Occupational Release: Stop leak if possible without personal risk. Isolate hazard area and deny entry. Refer to Section 13, "Disposal Considerations".

7. Handling and Storage

Storage: Store and handle in accordance with all current regulations and standards. RM 8561 should be stored in accordance with the Storage and Handling instructions in the NIST Report of Investigation. Store away from sparks, heat or other sources of ignition. Keep separated from incompatible substances. Store in a well ventilated area. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. Exposure Controls and Personal Protection

Natural gas

OSHA TWA (inhalation): 1800 mg/m^3 (1000 ppm)

NIOSH TWA (10 hours): 1800 mg/m^3 (1000 ppm)

UK WEL TWA (inhalation): 1750 mg/m^3 (1000 ppm)

Ventilation: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Respirator: A respiratory protection program that meets OSHA 29 CFR and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator. Refer to the "NIOSH Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84" for selection and use of respirators certified under NIOSH.

Eye Protection: Not required, but recommended. An eye wash station should always be available and easily accessable.

Personal Protection: Protective clothing is not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: Natural gas.

Physical state: Gaseous.

Appearance and Odor: Colorless, tasteless, varying odor.

Vapor Density (air = 1): 0.8

Water solubility: Insoluble.

Volatility: 100 %.

10. STABILITY AND REACTIVITY

Stability: X Stable _____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid heat, flames, sparks or other sources of ignition. Cylinder may rupture or explode if exposed to heat or flames. Protect cylinder from physical damage. Avoid contact with incompatible materials. Avoid inhalation of material.

Incompatibilities: Oxidizing materials.

Hazardous Decomposition Byproducts: Oxides of carbon.

Fire/Explosion Information: Refer to Section 5, "Fire Fighting Measures".

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation _____ Skin _____ Ingestion

Toxicity Data: Compressed natural gas is listed as a simple asphyxiant.

Health Effects:

Acute Exposure: The amount of natural gas supplied by RM 8561 (2 g) is unlikely to result in acute asphyxia. The following symptoms are provided as general information.

Simple Asphyxiants: The symptoms of asphyxia depend on the rapidity with which the oxygen deficiency develops and how long it continues. In sudden acute asphyxia, unconsciousness may be immediate. With slow development, there may be rapid respiration and pulse, air hunger, dizziness, reduced awareness, tightness in the head, tingling sensations, incoordination, faulty judgment, emotional instability, and rapid fatigue. As the asphyxia progresses, nausea, vomiting, collapse, unconsciousness, convulsions, deep coma and death are possible.

Chronic Exposure: No data listed.

Medical Conditions Generally Aggravated by Exposure: None listed.

12. ECOLOGICAL INFORMATION

Environmental Summary: No data listed.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: The cylinder is the property of the purchaser. Dispose in accordance with all applicable federal, state, and local regulations. Natural gas is subject to disposal regulations: U.S. EPA 40 CFR 262, Hazardous Waste Number(s): D00l.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Methane, compressed, UN1971, Hazard Class 2.1, Flammable gas

15. REGULATORY INFORMATION

U.S. REGULATIONS

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

ACUTE:	Yes
CHRONIC:	No
FIRE:	Yes
REACTIVE:	No
SUDDEN RELEASE:	Yes

STATE REGULATIONS

California Proposition 65: Not regulated

CANADIAN REGULATIONS

WHMIS Classification: Not determined.

EUROPEAN REGULATIONS

EC Classification: F+ Extremely flammable.

EC Risk and Safety Phrases: R12 Extremely flammable

NATIONAL INVENTORY STATUS

U.S. Inventory (TSCA): Listed on inventory.

TSCA 12(b), Export Notification: Not listed.

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Natural gas*, 13 September 2007.