

# MATERIAL SAFETY DATA SHEET – NATURAL GAS (PIPELINE QUALITY - MSDS #526)



**Revision Date:** January 26, 2012  
**Supersedes Date:** July 10, 2009

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

FortisBC  
16705 Fraser Highway  
Surrey, BC  
V3S 2X7

**Company Phone Number:** (604) 592-7629  
**Emergency Phone Number:** 1-800-663-9911

**Product Name:** Natural Gas (Pipeline Quality)  
**Material Use:** Fuel

**Manufacturer:** Duke Energy Inc.  
1333 West Georgia Street  
Vancouver, BC  
V6E 3K9

**Supplier:** FortisBC  
16705 Fraser Highway  
Surrey, BC  
V3S 2X7

**WHMIS Class:** A – Compressed Gas;  
B1 – Flammable and Combustible Material – Division 1 Flammable Gases  
**UN/PIN Number:** 1971  
**TDG Classification:** Class 2.1 Flammable Gases  
**TDG Shipping Name:** Natural gas, compressed with high methane content  
**Chemical Family:** Simple hydrocarbon  
**Chemical Formula:** Natural gas (considered a complex mixture)  
**Molecular Weight:** Not applicable (natural gas is considered a complex mixture)  
**CAS Number:** 8006-14-2  
**Trade Names / Synonyms:** Methane, marsh gas

## Section 2: HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**Appearance/Odour:** Gas like odour and colourless gas  
**Flammable:** Yes. Can cause flash fire  
**Potential Health Effects:** See Section 11 for more information  
**Potential Environmental Effects:** See Section 12 for more information  
**Likely Routes of Exposure:** Acute inhalation  
**Acute Inhalation:** At high concentrations, natural gas can displace oxygen causing asphyxiation and cause central nervous system (CNS) depression and cardiac sensitization.  
**Eye and Skin Contact:** None  
**Chronic- Inhalation:** None  
**Ingestion:** None  
**Skin Adsorption:** None

## Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS #	% by Wt.	Exposure Limits
Methane	74-82-8	95	1000 ppm
Ethane	74-84-0	3	1000 ppm
Propane	74-98-6	1	1000 ppm
Inert Gas	Not available	<1	Not available
Sulphur Compounds	Not available	Trace	Not available
Mercaptan Odourant	Mixture	3 ppm	0.5 ppm (ethyl mercaptan) 0.5 ppm (methyl mercaptan)

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### Section 4: FIRST AID MEASURES

- Skin Contact:** First aid is not normally required.
- Eye contact:** If irritation/redness develops, move victim away from exposure into fresh air and flush eyes with clean water.
- Inhalation:** Ensure your own safety before attempting rescue. Move victim to fresh air. Administer oxygen if breathing has stopped. If heart beat can not be detected begin CPR. If person is overcome or been adversely affected by the emergency, obtain medical attention immediately.
- Ingestion:** Unlikely route of exposure as this is a gas at normal room temperature and pressure.
- General Advise:** Use extreme care in handling due to high flammability.

### Section 5: FIRE FIGHTING MEASURES

- Flammability:** Flammable gas and can be ignited by heat, flames, sparks or other sources of ignition (e.g., static electricity, pilot lights or mechanical/electrical equipment).
- Suitable Extinguishing Media:** Dry chemical, carbon dioxide, water spray or fog.
- Special Procedures:** Shut off flow of gas from a safe location. Use full protective equipment and self-contained breathing apparatus (SCBA). Do not extinguish flame until gas flow is shut off. Use gas detectors in confined spaces. Evacuate area if cooling of containers is not possible. For large fires nonessential personnel should be evacuated beyond 750 metres.
- Products of Combustion:** Carbon dioxide and carbon monoxide
- Protection of Firefighters:** Firefighters should wear SCBA in case of oxygen deficient atmosphere.
- Sensitivity to Static Discharge:** Flammable
- Sensitivity to Mechanical Impact:** None
- Explosive Power:** Not available
- Rate of Burning:** Not available
- TDG Flammability Class** 2.1

### Section 6: ACCIDENTAL RELEASE MEASURES

- Personal Precautions:** Use personal protection recommended in Section 8.
- Environmental Precautions:** Not applicable
- Leak and Spill Procedure:** Evacuate area. Call emergency services and gas supplier. For large releases nonessential personnel should be evacuated beyond 750 metres. Eliminate any source of ignition.
- Methods for Containment:** Stay away and upwind of spill/release.
- Waste Disposal:** Vent to outside atmosphere.
- Other Information:** Allow to vapourize and disperse to atmosphere.

In case of an emergency and no response at FortisBC, call SERVICE CENTER: 1 (800) 663-9911.

### Section 7: HANDLING AND STORAGE

- Handling:** Observe handling regulations for compressed gases and flammable materials. To be handled by trained personnel only and followed with approved operating procedures.
- Storage:** Comply with storage regulations for compressed gases and flammable materials. No smoking or open flames in storage area.

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### Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Limits:** Simple asphyxiant - Maintain 19.5% oxygen level (below 19.5% oxygen is considered to be oxygen deficient).

Constituent <sup>NOTE1</sup>	ACGIH (8-hour TWA)	WorkSafeBC (8-hour TWA)
Methane	1000 ppm	1000 ppm
Ethane	1000 ppm	1000 ppm
Propane	1000 ppm	1000 ppm
Mercaptan Odourant	0.5 ppm (ethyl mercaptan) 0.5 ppm (methyl mercaptan)	0.5 ppm (ethyl mercaptan) 0.5 ppm (methyl mercaptan)

NOTE 1. Methane, ethane and propane are classified as C<sub>1</sub> to C<sub>4</sub> Aliphatic Hydrocarbon Gases. The ACGIH TLV-TWA for C<sub>1</sub> to C<sub>4</sub> Aliphatic Hydrocarbon Gases is believed to be protective against potential health effects that include CNS depression and cardiac sensitization. Mercaptan odourant mixtures commonly contain ethyl mercaptan and/or methyl mercaptan (both ethyl mercaptan and methyl mercaptan have 8-hour TWA exposure limits of 0.5 ppm).

#### Personal Protective

**Equipment:** Ensure use of proper personal protective equipment (PPE) at all times when handling this product.

**Eye/face:** Eye protection (e.g., safety glasses) and/or face shields.

**Skin:** Safety work boots. Chemical resistant gloves are not required but recommended as good practice when handling chemicals. Flame retardant clothing should be worn in potentially flammable areas.

**Respiratory:** If engineering controls and work practices are not effective in controlling exposure to natural gas, then wear suitable respiratory protection. Supplied air or SCBA.

**Other Considerations:** None

**Engineering Controls:** All installations (i.e., mechanical ventilation) must conform to code requirements. Provide adequate ventilation to maintain below exposure limits and explosive limits.

### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Gas
<b>Colour:</b>	Colourless
<b>Odour:</b>	Gas odour
<b>Specific Gravity (Water = 1):</b>	Not applicable
<b>Odour Threshold (ppm):</b>	2500
<b>Vapour Pressure (mm Hg):</b>	Not applicable
<b>Vapour Density (Air = 1):</b>	0.59
<b>Evaporation Rate (nButAC = 1):</b>	Not applicable (gas at room temperature)
<b>Boiling Point (°C):</b>	-160
<b>Freezing Point (°C):</b>	Not applicable
<b>Solubility in water (20°C):</b>	Slight
<b>Percent Volatile (by volume):</b>	Not available
<b>pH:</b>	Not available
<b>Density (g/ml):</b>	Not available
<b>Partition Coefficient (water/oil):</b>	Not available
<b>Flash Point (°C):</b>	Flammable gas
<b>Flammability (solid, gas):</b>	Flammable gas
<b>Lower Explosion Limit (%):</b>	5 (by volume)
<b>Upper Explosion Limit (%):</b>	15 (by volume)
<b>Auto-ignition Temperature (°C):</b>	537

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### Section 10: STABILITY AND REACTIVITY

<b>Chemical Stability:</b>	Yes
<b>Conditions to Avoid:</b>	High heat
<b>Incompatibility with Other Substances:</b>	Avoid contact with strong oxidizing agents
<b>Hazardous Decomposition Products:</b>	COx, luminous clean flame on combustion
<b>Reactivity (and Under What Conditions):</b>	Strong oxidizing agents increase risk of fire (peroxides, perchlorates, chlorine, liquid oxygen).

### Section 11: TOXICOLOGICAL INFORMATION

<b>LD50:</b>	Not applicable
<b>LC50:</b>	Not applicable
<b>Acute Effects:</b>	Simple asphyxiant: at high concentrations, natural gas can displace oxygen and cause asphyxiation. The ACGIH TLV-TWA for C <sub>1</sub> to C <sub>4</sub> Aliphatic Hydrocarbon Gases is believed to be protective against potential health effects that include CNS depression and cardiac sensitization. The TLV-TWA is based upon the abilities of these gases (methane, ethane, propane, etc) to produce weak depressant effects on the CNS at high concentration levels approaching the lower explosive limit. It has also been reported that ethane and propane can induce cardiac arrhythmias under certain conditions leading to ventricular fibrillation which can result in death in the presence of high epinephrine levels.
<b>Chronic Effects:</b>	None
<b>Carcinogenicity:</b>	Not considered carcinogenic by IARC, NTP, ACGIH or OSHA.
<b>Reproductive Effects:</b>	Not available
<b>Teratogenicity:</b>	Not available
<b>Mutagenicity:</b>	Not available
<b>Irritant:</b>	Not available
<b>Sensitizer:</b>	Not available
<b>Synergistic Effects:</b>	Not available

### Section 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	Not available
<b>Persistence/ Degradability:</b>	Not available
<b>Bioaccumulation/ Accumulation:</b>	Not available

There is no information available on the ecotoxicological effects of natural gas. Because of the high volatility of natural gas, it is unlikely to cause ground or water pollution. Natural gas released into the environment will disperse rapidly into the atmosphere and undergo photochemical degradation.

### Section 13: DISPOSAL CONSIDERATIONS

<b>Disposal:</b>	Allow to dissipate to the atmosphere (if permitted by federal/provincial/municipal requirements). Dispose in a safe location, preferably by burning with a flare. If disposal of natural gas cannot be flared, care must be taken to ensure complete dissipation of the gas to a concentration below its flammable limits.
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### Section 14: TRANSPORT INFORMATION

<b>TDG Classification:</b>	Class 2.1 Flammable Gases
<b>UN/PIN Number:</b>	1971
<b>TDG Shipping Description:</b>	Natural gas, compressed with high methane content

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**Special Shipping Information:** Handle as extremely flammable gas. Electronically ground/bond during transfer to avoid static accumulation. Precaution should be taken to minimize inhalation of natural gas.

### Section 15: REGULATORY INFORMATION

**DSL (Canada):** This product is on the DSL list (Canada).  
**WHMIS Class:** A – Compressed Gas;  
B1 – Flammable and Combustible Material – Division 1 Flammable Gases

### Section 16: OTHER INFORMATION

#### National Fire Protection Association (NFPA 704) Ratings:

Health	1	LEGEND	0 = minimal hazard
Flammability	4		1 = slight hazard
Instability	0		2 = moderate hazard
<i>(For natural gas from NFPA 325)</i>			3 = severe hazard
			4 = extreme hazard

#### Hazardous Materials Identification System (HMIS) Ratings:

Health	1	LEGEND	0 = minimal hazard
Flammability	4		1 = slight hazard
Physical Hazard	3		2 = moderate hazard
<i>(For methane from HMIS Chemical Ratings Guide)</i>			3 = serious hazard
			4 = severe hazard

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Occupational Hygiene and Safety Group

**Phone Number:** (604) 294-3811  
**Preparation Date:** January 26, 2012

**Additional Information and Comments:** This MSDS has been revised and updated from the last revision date of July 10, 2009. All sections and the order that which they appear have been documented as per American National Standard – *For Hazardous Industrial Chemicals – Material Safety Data Sheets Preparation* (ANSI Z400.1-2004).

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

**Information Sources:** Various