

# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Issue date: 2023-08-15 Revision date: 2023-08-15

Version: 1.0

# **SECTION 1: Identification**

### 1.1. Identification

Product form : Mixture
Product name : Natural Gas

Other means of identification : Methane, Sweet Gas, Fipeline Spec Gas, Sales Gas, Dry Natural Gas, Compressed

Gas, CH4

### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Fuel

## 1.3. Supplier

#### Manufacturer

Great Lakes Basin Energy LP Enbridge Inc. 500 Consumers Road North York, ON M2J 1P8 - Canada www.enbridge.com

### 1.4. Emergency telephone number

### 24x7 Emergency contact numbers:

1-866-763-5427 (Southern and Eastern Ontario); 1-877-969-0999 (SW and Northern Ontario); 1-800-770-3039 (Gas Storage Ontario); 1-819-771-8321 (Quebec)

# **SECTION 2: Hazard(s) identification**

### 2.1. Classification of the substance or mixture

#### **GHS** classification

Flammable Gases - Category 1 Gases Under Pressure - Compressed Gas Simple Asphyxiants

### 2.2. GHS Label elements, including precautionary statements

# **GHS** labelling

Hazard pictograms (GHS)





Signal word (GHS) : Danger

Hazard statements (GHS) : Extremely flammable gas.

Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation

Precautionary statements (GHS) : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Eliminate all ignition sources if safe to do so.

Store in a well-ventilated place.

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

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# 2.3. Other hazards which do not result in classification

No additional information available

# 2.4. Unknown acute toxicity

Not applicable

# **SECTION 3: Composition/information on ingredients**

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%
Natural gas	Natural gas Gas, natural / Synthetic natural gas / Natural gases / Natural gas (Raw natural gas, as found in nature, or a gaseous combination of hydrocarbons having carbon numbers predominantly in the range of C1-4 separated from raw natural gas by the removal of natural gas condensate, natural gas liquid, and natural gas condensate/natural gas.) / Compressed natural gas / Liquified natural gas	CAS-No.: 8006-14-2	80 – 100
Methane	Methane Marsh gas / Methyl hydride / Methane, compressed / Monomethylamine	CAS-No.: 74-82-8	80 – 100
Ethane	Ethane Ethyl hydride / ETHANE	CAS-No.: 74-84-0	1 – 5
Propane	Propane n-Propane / R290 / PROPANE / Normal propane	CAS-No.: 74-98-6	1 – 5
n-Butane	n-Butane Butane / BUTANE	CAS-No.: 106-97-8	1 – 5
Nitrogen	Nitrogen Nitrogen gas / Nitrogen, liquefied / NITROGEN / Nitrogen, compressed / nitrogen	CAS-No.: 7727-37-9	1 – 5
Carbon dioxide	Carbon dioxide Dry ice / CARBON DIOXIDE	CAS-No.: 124-38-9	1 – 5
n-Pentane	n-Pentane Pentane / Normal pentane / PENTANE / Pentane, n-	CAS-No.: 109-66-0	1 – 5

<sup>\*</sup>Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

# **SECTION 4: First-aid measures**

# 4.1. Description of first aid measures

First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position

comfortable for breathing. Give oxygen or artificial respiration if necessary. Call a POISON

CENTER/doctor if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists.

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First-aid measures after eye contact

: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion

Not a normal route of exposure. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation

: May cause irritation to the respiratory tract. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Symptoms of oxygen deficiency include respiratory difficulty, headache, dizziness, nausea, unconsciousness or death.

Symptoms/effects after skin contact

: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Symptoms/effects after eye contact

: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion

: Not a normal route of exposure. May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

#### 4.3. Immediate medical attention and special treatment, if necessary

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

# **SECTION 5: Fire-fighting measures**

### 5.1. Suitable (and unsuitable) extinguishing media

: Dry chemical. Water spray, fog, foam, carbon dioxide.

Unsuitable extinguishing media

Suitable extinguishing media

None known.

#### 5.2. Specific hazards arising from the chemical

Fire hazard

: Extremely flammable gas. Products of combustion may include, and are not limited to: oxides of

Explosion hazard

: May form flammable/explosive vapour-air mixture. Ruptured cylinders may rocket.

#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions

: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Move containers away from the fire area if this can be done without risk. Cool closed containers exposed to fire with water spray.

Protection during firefighting

: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

# **SECTION 6: Accidental release measures**

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures

: Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Use special care to avoid static electric charges. Eliminate every possible source of ignition.

#### 6.1.1. For non-emergency personnel

No additional information available

### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Avoid release to the environment. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

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### 6.3. Methods and material for containment and cleaning up

For containment : Stop leak if safe to do so. Remove all sources of ignition. Wear recommended personal

protective equipment.

Methods for cleaning up : Ventilate the area thoroughly, especially low lying areas (basements, workpits etc)

#### 6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

# **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : Avoid contact with skin and eyes. Do not swallow. Avoid breathing gas. Handle and open container with care. When using do not eat, drink or smoke. Keep away from heat, hot surfaces,

sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contar

: Wash contaminated clothing before reuse. Always wash hands after handling the product.

# 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed.

Storage conditions : Store in accordance with local regulations. Keep out of the reach of children. Keep container tightly closed. Store in a dry, cool and well-ventilated place. Protect from sunlight. Protect containers from physical damage. Eliminate ignition sources. Firmly secure cylinders upright to

keep them from falling or being knocked over.

# **SECTION 8: Exposure controls/personal protection**

#### 8.1. Control parameters

Natural Gas	
No additional information available	
Natural gas (8006-14-2)	
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA [ppm]	1000 ppm

#### **USA - ACGIH - Occupational Exposure Limits**

ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content

1250 ppm

### Methane (74-82-8)

OEL STEL [ppm]

# Canada (Saskatchewan) - Occupational Exposure Limits

OEL TWA [ppm]	1000 ppm
OEL STEL [ppm]	1250 ppm

## **USA - ACGIH - Occupational Exposure Limits**

ACGIH chemical category

Simple asphyxiant See Appendix F: Minimal Oxygen Content

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Ethane (74-94-0)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA (ppm) 1000 ppm  Canada (Saskatchewan) - Occupational Exposure Limits  OEL STEL (ppm) 1250 ppm  USA - ACCIH - Occupational Exposure Limits  ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content  Propane (74-98-6)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA (ppm) 1000 ppm  Canada (Quebec) - Occupational Exposure Limits  VEMP (OEL TWA) 19pm) 1000 ppm  Canada (Quebec) - Occupational Exposure Limits  VEMP (OEL TWA) 19pm) 1000 ppm  Canada (Saskatchewan) - Occupational Exposure Limits  OEL TWA (ppm) 1000 ppm  Canada (Saskatchewan) - Occupational Exposure Limits  OEL TWA (ppm) 1000 ppm  CEL STEL (ppm) 1250 ppm  USA - ACCIH - Occupational Exposure Limits  OEL TWA (ppm) 1250 ppm  USA - ACCIH - Occupational Exposure Limits  ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content  Regulatory reference ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m²  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table 2-1  USA - IDLH - Occupational Exposure Limits  IDLH (ppm) 2100 ppm (10% LEL)  USA - IDLH - Occupational Exposure Limits  IDLH (ppm) 2100 ppm  NOSH REL TWA (ppm) 1000 ppm  n-Buttane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA (ppm) 1000 ppm  Canada (Alberta) - Occupational Exposure Limits  OEL STEL (ppm) 1000 ppm  Canada (Rittish Columbia) - Occupational Exposure Limits  OEL STEL (ppm) 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	F(I) = (74.04.0)		
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OEL TWA [ppm] 1000 ppm  OEL STEL [ppm] 1250 ppm  USA - ACGIH - Occupational Exposure Limits  Local name Propane  Remark (ACGIH) TLV® Basis: Simple Asphyxiant  ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content  Regulatory reference ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	VEMP (OEL TWA) [ppm]	1000 ppm	
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USA - ACGIH - Occupational Exposure Limits  Local name Propane  Remark (ACGIH) TLV® Basis: Simple Asphyxiant  ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content  Regulatory reference ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	OEL TWA [ppm]	1000 ppm	
Local name Propane  Remark (ACGIH) TLV® Basis: Simple Asphyxiant  ACGIH chemical category Simple asphyxiant See Appendix F: Minimal Oxygen Content  Regulatory reference ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA [1] 1800 mg/m³  NIOSH REL TWA [1] 1000 ppm  1000 ppm  1000 ppm  -Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	OEL STEL [ppm]	1250 ppm	
Remark (ACGIH)  TLV® Basis: Simple Asphyxiant  Simple asphyxiant See Appendix F: Minimal Oxygen Content  Regulatory reference  ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name  Propane  OSHA PEL TWA [1]  1800 mg/m³  OSHA PEL TWA [2]  Regulatory reference (US-OSHA)  OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm]  2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA [ppm]  1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm]  1000 ppm  1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	USA - ACGIH - Occupational Exposure Limits		
ACGIH chemical category  Regulatory reference  ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name  Propane  OSHA PEL TWA [1]  OSHA PEL TWA [2]  Regulatory reference (US-OSHA)  USA - IDLH - Occupational Exposure Limits  IDLH [ppm]  2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA [ppm]  1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm]  1000 ppm  1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	Local name	Propane	
Regulatory reference ACGIH 2023  USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (Biritish Columbia) - Occupational Exposure Limits	Remark (ACGIH)	TLV® Basis: Simple Asphyxiant	
USA - OSHA - Occupational Exposure Limits  Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (Bititish Columbia) - Occupational Exposure Limits	ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content	
Local name Propane  OSHA PEL TWA [1] 1800 mg/m³  OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	Regulatory reference	ACGIH 2023	
OSHA PEL TWA [1] 1800 mg/m³ OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³ NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	USA - OSHA - Occupational Exposure Limits		
OSHA PEL TWA [2] 1000 ppm  Regulatory reference (US-OSHA) OSHA Annotated Table Z-1  USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	Local name	Propane	
Regulatory reference (US-OSHA)  USA - IDLH - Occupational Exposure Limits  IDLH [ppm]  2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA  1800 mg/m³  NIOSH REL TWA [ppm]  1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm]  1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	OSHA PEL TWA [1]	1800 mg/m³	
USA - IDLH - Occupational Exposure Limits  IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	OSHA PEL TWA [2]	1000 ppm	
IDLH [ppm] 2100 ppm (10% LEL)  USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA 1800 mg/m³  NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1	
USA - NIOSH - Occupational Exposure Limits  NIOSH REL TWA	USA - IDLH - Occupational Exposure Limits		
NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	IDLH [ppm]	2100 ppm (10% LEL)	
NIOSH REL TWA [ppm] 1000 ppm  n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	USA - NIOSH - Occupational Exposure Limits		
n-Butane (106-97-8)  Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	NIOSH REL TWA	1800 mg/m³	
Canada (Alberta) - Occupational Exposure Limits  OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	NIOSH REL TWA [ppm]	1000 ppm	
OEL TWA [ppm] 1000 ppm  Canada (British Columbia) - Occupational Exposure Limits	n-Butane (106-97-8)		
Canada (British Columbia) - Occupational Exposure Limits	Canada (Alberta) - Occupational Exposure Limits		
	OEL TWA [ppm]	1000 ppm	
OEL STEL [ppm] 1000 ppm (Butane, all isomers)	Canada (British Columbia) - Occupational Exposure Limits		
	OEL STEL [ppm]	1000 ppm (Butane, all isomers)	

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

n-Butane (106-97-8)		
Canada (Ontario) - Occupational Exposure Limits		
OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, all isomers)	
Canada (Quebec) - Occupational Exposure Limits		
VEMP (OEL TWA)	1900 mg/m³	
VEMP (OEL TWA) [ppm]	800 ppm	
Canada (Saskatchewan) - Occupational Exposure L	imits	
OEL TWA [ppm]	1000 ppm (Butane, all isomers)	
OEL STEL [ppm]	1250 ppm (Butane, all isomers)	
USA - ACGIH - Occupational Exposure Limits		
ACGIH OEL STEL [ppm]	1000 ppm (explosion hazard (Butane, isomers)	
USA - IDLH - Occupational Exposure Limits		
IDLH [ppm]	1600 ppm (>10% LEL)	
USA - NIOSH - Occupational Exposure Limits		
NIOSH REL TWA	1900 mg/m³	
NIOSH REL TWA [ppm]	800 ppm	
Nitrogen (7727-37-9)		
Canada (Alberta) - Occupational Exposure Limits		
Local name	Nitrogen	
Notations and remarks	Substance is a simple asphyxiant that may create an atmosphere deficient in oxygen; available oxygen in the range of 19.5 percent to 23 percent by volume must be present.	
Regulatory reference	Alberta Regulation 191/2021	
Canada (British Columbia) - Occupational Exposure	e Limits	
Local name	Nitrogen	
Notations and remarks	Simple asphyxiant	
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)	
USA - ACGIH - Occupational Exposure Limits		
Local name	Nitrogen	
Remark (ACGIH)	TLV® Basis: Simple Asphyxiant	
ACGIH chemical category	Simple asphyxiant See Appendix F: Minimal Oxygen Content	
Regulatory reference	ACGIH 2023	
Carbon dioxide (124-38-9)		
Canada (Alberta) - Occupational Exposure Limits		
Local name	Carbon dioxide	
OEL TWA	9000 mg/m³	
OEL TWA [ppm]	5000 ppm	
OEL STEL	54000 mg/m³	
OEL STEL [ppm]	30000 ppm	

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Carbon dioxide (124-38-9)		
Regulatory reference	Alberta Regulation 191/2021	
Canada (British Columbia) - Occupational Exposure	e Limits	
Local name	Carbon dioxide	
OEL TWA [ppm]	5000 ppm	
OEL STEL [ppm]	15000 ppm	
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)	
Canada (Ontario) - Occupational Exposure Limits		
OEL TWA [ppm]	5000 ppm	
OEL STEL [ppm]	30000 ppm	
Canada (Quebec) - Occupational Exposure Limits		
VECD (OEL STEL)	54000 mg/m³	
VECD (OEL STEL) [ppm]	30000 ppm	
VEMP (OEL TWA)	9000 mg/m³	
VEMP (OEL TWA) [ppm]	5000 ppm	
Canada (Saskatchewan) - Occupational Exposure L	imits	
OEL TWA [ppm]	5000 ppm	
OEL STEL [ppm]	30000 ppm	
USA - ACGIH - Occupational Exposure Limits		
Local name	Carbon dioxide	
ACGIH OEL TWA [ppm]	5000 ppm	
ACGIH OEL STEL [ppm]	30000 ppm	
Remark (ACGIH)	TLV® Basis: Asphyxia	
Regulatory reference	ACGIH 2022	
USA - OSHA - Occupational Exposure Limits		
Local name	Carbon dioxide	
OSHA PEL TWA [1]	9000 mg/m³	
OSHA PEL TWA [2]	5000 ppm	
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1	
USA - IDLH - Occupational Exposure Limits		
IDLH [ppm]	40000 ppm	
USA - NIOSH - Occupational Exposure Limits		
NIOSH REL TWA	9000 mg/m³	
NIOSH REL TWA [ppm]	5000 ppm	
NIOSH REL STEL	54000 mg/m³	
NIOSH REL STEL [ppm]	30000 ppm	

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

n-Pentane (109-66-0)		
Canada (Alberta) - Occupational Exposure Limits		
OEL TWA	1770 mg/m³	
OEL TWA [ppm]	600 ppm	
Canada (British Columbia) - Occupational Exposure	e Limits	
OEL TWA [ppm]	1000 ppm (Pentane, all isomers)	
Canada (Ontario) - Occupational Exposure Limits		
OEL TWA [ppm]	1000 ppm	
Canada (Quebec) - Occupational Exposure Limits		
VEMP (OEL TWA) [ppm]	1000 ppm (Pentane (all isomers))	
Canada (Saskatchewan) - Occupational Exposure L	imits	
OEL TWA [ppm]	600 ppm	
OEL STEL [ppm]	750 ppm	
USA - ACGIH - Occupational Exposure Limits		
ACGIH OEL TWA [ppm]	1000 ppm (Pentane, all isomers)	
USA - OSHA - Occupational Exposure Limits		
OSHA PEL TWA [1]	2950 mg/m³	
OSHA PEL TWA [2]	1000 ppm	
USA - IDLH - Occupational Exposure Limits		
IDLH [ppm]	1500 ppm (10% LEL)	
USA - NIOSH - Occupational Exposure Limits		
NIOSH REL TWA	350 mg/m³	
NIOSH REL TWA [ppm]	120 ppm	
NIOSH REL C	1800 mg/m³	
NIOSH REL C [ppm]	610 ppm	

# 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Environmental exposure controls : Avoid release to the environment.

# 8.3. Individual protection measures/Personal protective equipment

Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.		Eye protection:
	ckness.	Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material

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Hand protection:

Safety glasses or goggles are recommended when using product.

# Skin and body protection:

Wear suitable protective clothing

# Respiratory protection:

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

#### Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

## **SECTION 9: Physical and chemical properties**

# 9.1. Information on basic physical and chemical properties

Physical state : Gas
Colour : Colourless
Odour : Odourless

"Rotten Egg" smell (Mercaptan mixture added as odorant).

 Odour threshold
 : < 10000 ppm</td>

 pH
 : No data available

 Melting point
 : -182.6 °C (-296.7°F)

 Freezing point
 : No data available

 Boiling point
 : -161.5 °C (-258.7°F)

Flash point :  $> -188 \, ^{\circ}\text{C} \, (-370 \, ^{\circ}\text{F}) \, (\text{methane})$ 

Relative evaporation rate (butylacetate=1) : > 1

Flammability : Extremely flammable gas.

Vapour pressure : 133.3 kPa (>1000 mm Hg (20°C/68°F)

Relative vapour density at 20°C / 68 °F 0.56 - 0.59Relative density : No data available Solubility : No data available : No data available Partition coefficient n-octanol/water : 537 °C (998.6°F) Auto-ignition temperature Decomposition temperature : No data available : No data available Viscosity, kinematic Viscosity, dynamic : No data available

Explosive limits : Lower explosion limit: 5 vol %
Upper explosion limit: 15 vol %

opper explosion limit. I

Explosive properties : No data available
Oxidising properties : No data available

#### 9.2. Other information

No additional information available

# **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

No dangerous reactions known under normal conditions of use.

# 10.2. Chemical stability

Stable under normal conditions. Extremely flammable gas. Contains gas under pressure; may explode if heated.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Heat. Incompatible materials. Sources of ignition. Direct sunlight.

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

# 10.5. Incompatible materials

Respiratory or skin sensitisation

Germ cell mutagenicity

Reproductive toxicity

Carcinogenicity

Oxidizing materials.

# 10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon.

# **SECTION 11: Toxicological information**

Acute toxicity (oral) : Not classified.
Acute toxicity (dermal) : Not classified.
Acute toxicity (inhalation) : Not classified.

	Not classified.
Natural gas (8006-14-2)	
LC50 inhalation rat	658 mg/l/4h
ATE CA (vapours)	658 mg/l/4h
ATE CA (dust,mist)	658 mg/l/4h
Methane (74-82-8)	
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	539600 ppm (Exposure time: 2 h)
ATE CA (Gases)	539600 ppmv/4h
Ethane (74-84-0)	
LC50 inhalation rat	> 800000 ppm/4h
Propane (74-98-6)	
LC50 inhalation rat	> 800000 ppm (Exposure time: 15 min)
n-Butane (106-97-8)	
LC50 inhalation rat	658 g/m³ (Exposure time: 4 h)
ATE CA (vapours)	658 mg/l/4h
ATE CA (dust,mist)	658 mg/l/4h
n-Pentane (109-66-0)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat	364 g/m³ (Exposure time: 4 h)
ATE CA (Dermal)	3000 mg/kg bodyweight
ATE CA (vapours)	364 mg/l/4h
ATE CA (dust,mist)	364 mg/l/4h
	Not classified.
Serious eye damage/irritation :	Not classified.

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: Not classified.

: Not classified.

: Not classified.: Not classified.

# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

n-Pentane (109-66-0)	
NOAEL (animal/male, F0/P)	300 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 415 (One-Generation Reproduction Toxicity Study)
NOAEL (animal/female, F0/P)	≥ 1000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 415 (One-Generation Reproduction Toxicity Study)
STOT-single exposure	: Not classified.
n-Pentane (109-66-0)	
STOT-single exposure	May cause drowsiness or dizziness.
	: Not classified.
STOT-repeated exposure	
Methane (74-82-8)	
LOAEC (inhalation, rat, gas, 90 days)	12000 ppm Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: other:
n-Pentane (109-66-0)	
NOAEC (inhalation, rat, vapour, 90 days)	30 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Da Study), Guideline: other:U.S. EPA/FIFRA Guidelines §82-4, Guideline: EPA OTS 798.2450 (90-Day Inhalation Toxicity), Guideline: other:U.S. EPA/TSCA Guidelines 40 CFR §798.6059, and §798.6059, 798.6200, 798.6400, Guideline: other:EU Guideline 87/302/EEC
Aspiration hazard	: Not classified.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Symptoms of oxygen deficiency include respiratory difficulty, headache, dizziness, nausea, unconsciousness or death.
Symptoms/effects after skin contact	: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	<ul> <li>May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.</li> </ul>
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

# SECTION 12: Ecological information

12.1. Toxicity

12.11 TOXIOITY	
Ecology - general	: May cause long-term adverse effects in the aquatic environment.
n-Pentane (109-66-0)	
LC50 - Fish [1]	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 - Crustacea [1]	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
12.2. Persistence and degradability	

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Natural Gas	
Persistence and degradability	Not established.

# 12.3. Bioaccumulative potential

Natural Gas	
Bioaccumulative potential	Not established.

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Natural gas (8006-14-2)		
Partition coefficient n-octanol/water	≤ 2.8	
Methane (74-82-8)		
Partition coefficient n-octanol/water	1.09	
Ethane (74-84-0)		
Partition coefficient n-octanol/water	1.09 – 2.8 (at 20 °C (at pH 7)	
Propane (74-98-6)		
Partition coefficient n-octanol/water	1.09 (at 20 °C (at pH 7)	
n-Butane (106-97-8)		
Partition coefficient n-octanol/water	2.31 (at 20 °C (at pH 7)	
Carbon dioxide (124-38-9)		
BCF - Fish [1]	(no bioaccumulation)	
n-Pentane (109-66-0)		
Partition coefficient n-octanol/water	3.45 (at 25 °C (at pH 7)	

# 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Effect on global warming : No known effects from this product.

Other information : No other effects known.

# **SECTION 13: Disposal considerations**

# 13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with

local, regional, national and/or international regulation. Recycle empty containers where allowed.

Additional information : Handle empty containers with care because residual vapours are flammable.

# **SECTION 14: Transport information**

In accordance with DOT / TDG

# 14.1. UN number

DOT NA No : UN1971 UN-No. (TDG) : UN1971

### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Methane, compressed (OR Natural gas, compressed (Methane, Natural gas))
Proper Shipping Name (TDG) : METHANE, COMPRESSED (OR Natural gas, compressed (Methane, Natural gas))

# 14.3. Transport hazard class(es)

#### DOT

Transport hazard class(es) (DOT) : 2.1 Hazard labels (DOT) : 2.1

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015



#### **TDG**

Transport hazard class(es) (TDG) : 2.1 Hazard labels (TDG) : 2.1



# 14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable

### 14.5. Environmental hazards

Other information : No supplementary information available.

# 14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

# **SECTION 15: Regulatory information**

### 15.1 Federal regulations

All components of this product are listed on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

All components of this product are listed on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

# 15.2. International regulations

No additional information available

# 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

# **SECTION 16: Other information**

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Revision date : 08/15/2023 Other information : None.

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# Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Full text of H-statements	
Flam. Gas 1	Flammable gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Simple Asphy	Simple Asphyxiant

SDS HazCom 2012 - WHMIS 2015 (Nexreg) 2023

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