

# SAFETY DATA SHEET

SDS ID NO.: 0116MAR022  
Revision Date: 10/08/2019

## 1. IDENTIFICATION

**Product Name:** MarkWest Wellhead Natural Gas  
**Synonym:** Wellhead natural gas; Raw gas  
**Product Code:** 0116MAR022  
**Chemical Family:** Hydrocarbon Gas  
**Recommended Use:** Feedstock.  
**Restrictions on Use:** All others.

**Manufacturer, Importer, or Responsible Party Name and Address:**

**MarkWest Energy Partners, L.P.**  
a subsidiary of MPLX LP  
1515 Arapahoe Street  
Tower 1, Suite 1600  
Denver, Colorado 80202

**SDS information:** 1-419-421-3070 (M-F, 8-5 EST)  
**Emergency Telephone:** CHEMTREC: 1-800-424-9300

## 2. HAZARD IDENTIFICATION

### Classification

#### OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable gases	Category 1
Gases under pressure	Compressed Gas
Simple asphyxiant	-
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3

#### Hazards Not Otherwise Classified (HNOC)

May release hydrogen sulfide gas  
Contact with product may cause frostbite.

### Label elements

#### EMERGENCY OVERVIEW

#### Danger

Extremely flammable gas  
Contains gas under pressure; may explode if heated  
May displace oxygen and cause rapid suffocation  
May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell  
Contact with rapidly expanding gas may cause frostbite  
May cause drowsiness or dizziness  
May cause genetic defects  
May cause cancer  
Suspected of damaging fertility or the unborn child

**Appearance** Clear, Colorless Gas**Physical State** Gas**Odor** Hydrocarbon to rotten egg**Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Avoid breathing gas/vapors  
 Use only outdoors or in a well-ventilated area  
 Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

Leaking gas fire: Do not extinguish, unless leak can be stopped safely  
 Eliminate all ignition sources if safe to do so  
 IF exposed or concerned: Get medical attention  
 If inhaled: Remove person to fresh air and keep comfortable for breathing.  
 Call a poison center or doctor if you feel unwell

**Precautionary Statements - Storage**

Protect from sunlight. Store in a well-ventilated place  
 Keep container tightly closed  
 Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container at an approved waste disposal plant

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Composition Information:**

Name	CAS Number	% Concentration
Natural Gas	8006-14-2	100
Methane	74-82-8	> 55
Nitrogen	7727-37-9	< 25
Ethane	74-84-0	< 20
Propane	74-98-6	< 15
Carbon Dioxide	124-38-9	< 10
Butane (mixed isomers)	106-97-8	< 10
Pentane (mixed isomers)	109-66-0	< 4.5
n-Hexane	110-54-3	< 1.5
Benzene	71-43-2	< 0.15
Hydrogen sulfide	7783-06-4	< 0.03

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

### 4. FIRST AID MEASURES

**First Aid Measures****General Advice:**

In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

<b>Inhalation:</b>	Remove to fresh air. If not breathing, utilize bag valve mask or other form of barrier device to institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Get immediate medical attention.
<b>Skin Contact:</b>	If product has caused frostbite, remove contaminated clothing. Thaw frost bitten areas slowly with lukewarm water or by wrapping affected areas with blankets. Do not rub affected areas. Let circulation reestablish itself naturally, exercising area if possible. Get immediate medical attention.
<b>Eye Contact:</b>	Flush with large amounts of tepid water for at least 15 minutes. Gently remove contact lenses while flushing. Eyelids should be held away from the eyeball to ensure thorough rinsing. If frostbite is suspected (cloudy lens or greyish white tissue around the eye) get immediate medical attention.
<b>Ingestion:</b>	Ingestion not likely. If swallowed, immediately call a poison control center or physician.

**Most important signs and symptoms, both short-term and delayed with overexposure**

<b>Adverse Effects:</b>	Asphyxiant gas. High concentrations in the immediate area can displace oxygen causing the feeling of suffocation and can cause headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue from oxygen deprivation. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions. Contact with product may cause frostbite.
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**Indication of any immediate medical attention and special treatment needed**

<b>Notes To Physician:</b>	INHALATION: Inhalation exposure can produce toxic effects. Treat intoxications as hydrogen sulfide exposures. At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.
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## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**

For small fires, Class B fire extinguishing media such as CO<sub>2</sub>, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

**Unsuitable extinguishing media**

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

**Specific hazards arising from the chemical**

This product has been determined to be an extremely flammable gas per the OSHA Hazard Communication Standard and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information see NFPA 30 or the Emergency Response Guidebook 115. May accumulate electrostatic charge and ignite or explode. Sealed containers may rupture when heated. A phenomena known as boiling liquid expanding vapor explosions (BLEVE) can occur when a liquid in a pressurized container comes in close proximity to a fire and reaches a temperature well above its boiling point. A catastrophic failure of the vessel can occur, resulting in flying equipment fragments, a shock wave and a fireball causing serious damage and death.

**Hazardous combustion products**

Smoke, carbon monoxide, and other products of incomplete combustion.

**Explosion data**

**Sensitivity to Mechanical Impact** No.

**Sensitivity to Static Discharge** Yes.

**Special protective equipment and precautions for firefighters**

Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Since this gas could burn with a near invisible flame in daylight, approach with caution. Isolate hazard area. If safe to do so, stop the flow of gas and allow fire to burn out. Extinguishing the flame before shutting off the supply can cause the formation of explosive mixtures. In some cases it may be preferred to allow the flame to continue to burn. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Avoid use of solid water streams. Contact with water and liquefied product can cause increased vaporization. Use extreme caution when fighting petroleum gas fires.

**Additional firefighting tactics**

**FIRES INVOLVING TANKS OR CAR/TRAILER LOADS:** Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**EVACUATION:** Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

**NFPA**

Health 1

Flammability 4

Instability 0

Special Hazard -

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions:</b>	Keep people away from and upwind of spill/leak. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Use spark-proof tools and explosion-proof equipment. Distant ignition and flashback are possible. Monitor area for flammable or explosive atmosphere. Before entry, especially into confined areas, check atmosphere with an appropriate monitor.
<b>Protective equipment:</b>	Use personal protection measures as recommended in Section 8.
<b>Emergency procedures:</b>	Leaking containers should be moved outdoors or to well-ventilated area and contents transferred to a suitable container. Product vapor is heavier than air and can collect in low areas that are without sufficient ventilation. Notify local health and pollution control agencies, if appropriate.
<b>Environmental precautions:</b>	If leaking, take appropriate steps to disperse gas.
<b>Methods and materials for containment:</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods and materials for cleaning up:</b>	Shut off gas supply, if safe to do so. Allow equipment to depressurize. Isolate area until gas has dispersed.

## 7. HANDLING AND STORAGE

<b>Safe Handling Precautions:</b>	Avoid breathing fumes, gas, or vapors. Use only outdoors or with adequate ventilation. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Gas may accumulate along the ground, settle in low lying areas or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback may occur along vapor trails. Use only non-sparking tools. Use appropriate grounding and bonding
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practices. Use personal protection recommended in Section 8. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements.

Harmful concentrations of hydrogen sulfide (H<sub>2</sub>S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading. Sulfur containing products may cause polysulfide deposits (iron sulfide) to form inside iron storage tanks. These pyrophoric deposits, upon exposure to air, can ignite spontaneously.

**Storage Conditions:**

Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Keep product and empty container away from heat and sources of ignition. Do not puncture or incinerate container.

**Incompatible Materials**

Strong oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELs:	NIOSH IDLH
Natural Gas 8006-14-2	1000 ppm TWA	-	-
Methane 74-82-8	Simple asphyxiant	-	-
Nitrogen 7727-37-9	Simple asphyxiant	-	-
Ethane 74-84-0	Simple asphyxiant	-	-
Propane 74-98-6	Simple asphyxiant	TWA: 1000 ppm TWA: 1800 mg/m <sup>3</sup>	2100 ppm
Carbon Dioxide 124-38-9	5000 ppm TWA 30000 ppm STEL	TWA: 5000 ppm TWA: 9000 mg/m <sup>3</sup>	40000 ppm
Butane (mixed isomers) 106-97-8	1000 ppm STEL	-	-
Pentane (mixed isomers) 109-66-0	1000 ppm TWA	TWA: 1000 ppm TWA: 2950 mg/m <sup>3</sup>	1500 ppm
n-Hexane 110-54-3	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m <sup>3</sup>	1100 ppm
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	500 ppm
Hydrogen sulfide 7783-06-4	1 ppm TWA 5 ppm STEL	Ceiling: 20 ppm Peak: 50 ppm	100 ppm

**Notes:** No further information available.

**Engineering measures:**

Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof. Monitor atmospheric oxygen levels.

**Personal protective equipment****Eye protection:**

Goggles or faceshield may be needed when handling pressurized gases.

**Skin and body protection:**

Wear insulated gloves when handling pressurized gases to prevent skin contact and frostbite or freeze burn. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

**Respiratory protection:** Use atmosphere supplying respirators in the event of oxygen deficiency, when material produces gases and/or vapors that exceed permissible limits, or when excessive gases and/or vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Note: Air purifying respirators are not to be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturers instructions), in oxygen deficient atmospheres, (less than 19.5% oxygen) or under conditions that are immediately dangerous to life and health (IDLH).

**Hygiene measures:** Use mechanical ventilation equipment that is explosion-proof. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Do not smoke while handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical State</b>	Gas
<b>Appearance</b>	Clear, Colorless Gas
<b>Color</b>	Colorless
<b>Odor</b>	Hydrocarbon to rotten egg
<b>Odor Threshold</b>	No data available.

<u>Property</u>	<u>Values (Method)</u>
<b>Melting Point / Freezing Point</b>	No data available.
<b>Initial Boiling Point / Boiling Range</b>	-162 °C / -259 °F (methane)
<b>Flash Point</b>	No data available.
<b>Evaporation Rate</b>	No data available.
<b>Flammability (solid, gas)</b>	Extremely flammable gas
<b>Flammability Limit in Air (%):</b>	
<b>Upper Flammability Limit:</b>	17 (natural gas)
<b>Lower Flammability Limit:</b>	3.8 (natural gas)
<b>Explosion limits:</b>	No data available.
<b>Vapor Pressure</b>	No data available.
<b>Vapor Density</b>	0.57-1.06 (air=1)
<b>Specific Gravity / Relative Density</b>	No data available.
<b>Water Solubility</b>	No data available.
<b>Solubility in other solvents</b>	No data available.
<b>Partition Coefficient</b>	No data available.
<b>Decomposition temperature</b>	No data available.
<b>pH:</b>	Not applicable.
<b>Autoignition Temperature</b>	>288 °C / >550 °F (estimated)
<b>Kinematic Viscosity</b>	No data available.
<b>Dynamic Viscosity</b>	No data available.
<b>Explosive Properties</b>	No data available.
<b>VOC Content (%)</b>	No data available.
<b>Density</b>	No data available.
<b>Bulk Density</b>	Not applicable.

## 10. STABILITY AND REACTIVITY

<b><u>Reactivity</u></b>	The product is non-reactive under normal conditions.
<b><u>Chemical stability</u></b>	Stable under recommended storage conditions.
<b><u>Possibility of hazardous reactions</u></b>	None under normal processing.
<b><u>Hazardous polymerization</u></b>	Will not occur.
<b><u>Conditions to avoid</u></b>	Sources of heat or ignition.

**Incompatible Materials**

Strong oxidizing agents.

**Hazardous decomposition products**

Hazardous combustion products may include, but are not limited to, carbon oxides and hydrogen sulfide.

**11. TOXICOLOGICAL INFORMATION****Potential short-term adverse effects from overexposures**

<b>Inhalation</b>	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. In high concentration the gas may cause suffocation. Victim may not be aware of asphyxiation. May release highly toxic hydrogen sulfide gas that quickly fatigues the sense of smell. Concentrations of >1000 ppm will cause immediate unconsciousness and death through respiratory paralysis.
<b>Eye contact</b>	Vapor may cause irritation. Contact with rapidly expanding gas may cause frostbite.
<b>Skin contact</b>	Gas or vapor is generally non-irritating to skin. Contact with rapidly expanding gas may cause frostbite.
<b>Ingestion</b>	Ingestion not likely.

**Acute toxicological data**

Name	Oral LD50	Dermal LD50	Inhalation LC50
Natural Gas 8006-14-2	-	-	658 mg/L (Rat) 4 h
Methane 74-82-8	-	-	326 mg/m <sup>3</sup> (Mouse) 2 h
Nitrogen 7727-37-9	-	-	-
Ethane 74-84-0	-	-	658 mg/L (Rat) 4 h
Propane 74-98-6	-	-	> 1,464 mg/L (Rat) 15 min
Carbon Dioxide 124-38-9	-	-	-
Butane (mixed isomers) 106-97-8	-	-	658 mg/L (Rat) 4 h
Pentane (mixed isomers) 109-66-0	-	-	364 mg/L (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/l (Rat) 4 h
Hydrogen sulfide 7783-06-4	-	-	444 ppm (Rat) 4 h

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

METHANE and ETHANE: Exposure to high levels of these gases produce weak central nervous system (CNS) depressant effects without significant potential for systemic toxicity. At very high levels they act as asphyxiant gases by diluting and displacing oxygen. Symptoms of persons exposed to oxygen deficient atmospheres include headache, dizziness, incoordination, cyanosis and narcosis. Extremely high concentrations can produce unconsciousness followed by death.

NITROGEN: Nitrogen is a simple asphyxiant gas without significant potential for systemic toxicity. At very high concentrations, it acts as an asphyxiant gas by diluting and displacing oxygen. Symptoms of persons exposed to oxygen deficient atmospheres include headache, dizziness, incoordination, cyanosis and narcosis. Extremely high concentrations can produce unconsciousness followed by death.

PROPANE, BUTANE and PENTANE: Laboratory animal studies indicate exposure to extremely high levels (1 to 10 vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

CARBON DIOXIDE: Carbon dioxide is a simple asphyxiant and has no warning properties (such as odor). Inhalation of high concentrations can produce mild narcotic effects and stimulation of the respiratory centers. Eye, nose and throat irritation can occur at very high exposure concentrations. Poisoning may affect the lungs, heart, kidney and central nervous system. Sleepiness, mental confusion, giddiness, lassitude (weakness), noise in the ear, weakened reflexes, tremors, flaccid paralysis, coma, and death may all occur from carbon dioxide poisoning.

N-HEXANE: Short-term overexposure to n-hexane vapor may cause headache, nausea, vomiting, dizziness, lightheadedness, loss of consciousness, coma, and even death in humans. Respiratory effects of overexposure may include nose, throat, and lung irritation, coughing, wheezing, and shortness of breath. Direct and prolonged contact with liquid may cause dryness and redness of the skin. Long-term or repeated overexposure to n-hexane can cause peripheral nerve damage. Initial signs are numbness of the fingers and toes. Motor/muscle weakness can occur in the digits, but may also involve muscles of the arms, forearms, and thighs. Onset of these signs may be delayed for several months to a year after initial exposure. Repeated and sustained inhalation exposure to high vapor concentrations of n-hexane resulted in degenerative changes in the testes and reduced sperm count in male laboratory rats.

BENZENE: Benzene exposure may cause skin, eye and respiratory irritation. Excessive exposures may cause central nervous system effects. Numerous studies of workers exposed to airborne benzene for prolonged or repeated periods show strong evidence that overexposure can cause cancer of the blood, AML (acute myeloid leukemia), along with other disorders indicating damage to the blood forming organs including aplastic anemia, leukopenia, thrombocytopenia, and the development of myelodysplastic syndrome. Some studies of pregnant women occupationally exposed to benzene suggest associations with an increased risk of miscarriage, stillbirth, reduced birth weight, and gestational age. Prolonged and repeated exposure to benzene has induced chromosomal aberrations in circulating human lymphocytes, in bone marrow cells of laboratory animals, and in sperm cells of both humans and laboratory animals.

HYDROGEN SULFIDE: Hydrogen sulfide has a strong, unpleasant odor resembling that of rotten eggs. Odor, however, is not a reliable means for detecting potentially dangerous concentration of the gas, as the sense of smell diminishes very rapidly at concentrations of 50 ppm or higher. Eye irritation has been reported at 4 ppm. Irritation of the respiratory tract may occur at 50 ppm. Hydrogen sulfide gas may be fatal if inhaled in sufficient concentrations. Immediate loss of consciousness and death resulting from respiratory paralysis has occurred at concentrations as low as 500 ppm.

### **Adverse effects related to the physical, chemical and toxicological characteristics**

<b>Signs and Symptoms</b>	Asphyxiant gas. High concentrations in the immediate area can displace oxygen causing the feeling of suffocation and can cause headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue from oxygen deprivation. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since loss of smell rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions. Contact with product may cause frostbite.
<b>Acute toxicity</b>	None known.
<b>Skin corrosion/irritation</b>	None known.
<b>Serious eye damage/eye irritation</b>	None known.



<b>Sensitization</b>	None known.
<b>Mutagenic effects</b>	May cause genetic defects.
<b>Carcinogenicity</b>	May cause cancer.

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Natural Gas 8006-14-2	Not Listed	Not Listed	Not Listed	Not Listed
Methane 74-82-8	Not Listed	Not Listed	Not Listed	Not Listed
Nitrogen 7727-37-9	Not Listed	Not Listed	Not Listed	Not Listed
Ethane 74-84-0	Not Listed	Not Listed	Not Listed	Not Listed
Propane 74-98-6	Not Listed	Not Listed	Not Listed	Not Listed
Carbon Dioxide 124-38-9	Not Listed	Not Listed	Not Listed	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Pentane (mixed isomers) 109-66-0	Not Listed	Not Listed	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
Hydrogen sulfide 7783-06-4	Not Listed	Not Listed	Not Listed	Not Listed

<b>Reproductive toxicity</b>	Suspected of damaging fertility or the unborn child.
<b>Specific Target Organ Toxicity (STOT) - single exposure</b>	May cause drowsiness or dizziness.
<b>Specific Target Organ Toxicity (STOT) - repeated exposure</b>	None known.
<b>Aspiration hazard</b>	Not applicable.

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	This product is not expected to be harmful to aquatic organisms.
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Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Natural Gas 8006-14-2	-	-	-	-
Methane 74-82-8	-	-	-	-
Nitrogen 7727-37-9	-	-	-	-
Ethane 74-84-0	-	-	-	-
Propane 74-98-6	-	-	-	-
Carbon Dioxide 124-38-9	-	-	-	-
Butane (mixed isomers) 106-97-8	-	-	-	-
Pentane (mixed isomers) 109-66-0	-	96-hr LC50 >1 - <10 mg/L Rainbow trout	-	48-hr EC50 = 9.7 mg/L Daphnia magna

n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
Hydrogen sulfide 7783-06-4	-	96-hr LC50 = 0.016 mg/l Fathead minnow 96-hr LC50 = 0.013 mg/l Rainbow trout	-	-

<b><u>Persistence and degradability</u></b>	Readily biodegradable in the environment.
<b><u>Bioaccumulation</u></b>	Not expected to bioaccumulate in aquatic organisms.
<b><u>Mobility in soil</u></b>	Due to physical property, the mobility of this material is expected to be negligible.
<b><u>Other adverse effects</u></b>	No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Description of Waste Residues

No information available.

#### Safe Handling of Wastes

Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

#### Disposal of Wastes / Methods of Disposal

The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

#### Methods of Contaminated Packaging Disposal

Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

### 14. TRANSPORT INFORMATION

#### DOT:

<b>UN Proper Shipping Name:</b>	Natural Gas, Compressed
<b>UN/Identification No:</b>	UN 1971
<b>Class:</b>	2.1
<b>Packing Group:</b>	Not applicable.

#### IATA:

<b>UN Proper Shipping Name:</b>	Natural Gas, Compressed
<b>UN/Identification No:</b>	UN 1971
<b>Transport Hazard Class(es):</b>	2.1
<b>Packing Group:</b>	Not applicable.

#### IMDG:

<b>UN Proper Shipping Name:</b>	Natural Gas, Compressed
<b>UN/Identification No:</b>	UN 1971
<b>Transport Hazard Class(es):</b>	2.1
<b>Packing Group:</b>	Not applicable.
<b>EmS No:</b>	F-D, S-U
<b>Marine Pollutant:</b>	No

### 15. REGULATORY INFORMATION

#### US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b):

This product and/or its components are listed on the TSCA Chemical Inventory or are exempt.

**EPA Superfund Amendment & Reauthorization Act (SARA):****SARA Section 302:** This product may contain component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Natural Gas	NA
Methane	NA
Nitrogen	NA
Ethane	NA
Propane	NA
Carbon Dioxide	NA
Butane (mixed isomers)	NA
Pentane (mixed isomers)	NA
n-Hexane	NA
Benzene	NA
Hydrogen sulfide	500

**SARA Section 304:** This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Natural Gas	NA
Methane	NA
Nitrogen	NA
Ethane	NA
Propane	NA
Carbon Dioxide	NA
Butane (mixed isomers)	NA
Pentane (mixed isomers)	NA
n-Hexane	5000
Benzene	10
Hydrogen sulfide	100

**SARA Section 311/312:** The following EPA hazard categories apply to this product:

Flammable  
 Gas under pressure  
 Simple asphyxiant  
 Germ cell mutagenicity  
 Carcinogenicity  
 Reproductive toxicity  
 Hazard Not Otherwise Classified (HNOC)-Health

**SARA Section 313:** This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Natural Gas	None
Methane	None
Nitrogen	None
Ethane	None
Propane	None
Carbon Dioxide	None
Butane (mixed isomers)	None
Pentane (mixed isomers)	None

n-Hexane	1.0 % de minimis concentration
Benzene	0.1 % de minimis concentration
Hydrogen sulfide	1.0 % de minimis concentration

**State and Community Right-To-Know Regulations:**

The following component(s) of this material are identified on the regulatory lists below:

**Natural Gas**

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

**Methane**

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1202
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1202 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

**Nitrogen**

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1375
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
<b>Ethane</b>	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0834
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0834 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
<b>Propane</b>	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1594
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1594 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
<b>Carbon Dioxide</b>	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0343
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
<b>Butane (mixed isomers)</b>	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed

New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Pentane (mixed isomers)	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1476
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1476 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
n-Hexane	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)
Benzene	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous

Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)
Hydrogen sulfide	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1017
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1017 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 100 lb RQ (land/water)

**Canada DSL/NDSL Inventory:** This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

**Notes:** Not applicable.

## 16. OTHER INFORMATION

**Prepared By** Toxicology & Product Safety

### Revision Notes

**Revision Date:** 10/08/2019

### Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**NOTE: Naturally Occurring Radioactive Material (NORM), i.e. gases and particles, are found in trace amounts in crude oil and some derived products. Worker risks from NORM can be minimized by determining where NORM is present and controlling the handling of NORM contaminated wastes and processing, transport or storage equipment (e.g. lines, filters, pumps and reaction units) in compliance with OSHA's Standard on Ionizing Radiation 29CFR 1910.1096. During the processing of crude oil and certain petroleum products, NORM may accumulate in sediments, scales and sludge found in processing equipment (e.g. lines, filters, pumps and reaction units), and consequently may present an inhalation or ingestion hazard. For additional information on managing NORM, please refer to API's Bulletin E2 entitled, "Bulletin on Management of Naturally Occurring Radioactive Material in Oil and Gas Production".**

