



Safety Data Sheet

1. Identification

Product Name: Natural Gas (Sour)
Chemical Family: Natural Gas
Manufacturers Name: Whiting Oil and Gas Corporation
Address: 1700 Broadway, Suite 2300
Denver, Colorado 80290
Product Use: Hydrocarbon fuel
Phone Number for Information: (303) 837-1661
Emergency Phone Number: (800) 424-9300 (Chemtrec)

Natural gas is a raw natural gas, as found in nature, or a gaseous combination of hydrocarbons having carbon numbers predominantly in the range of C1 through C4 separated from raw natural gas by the removal of natural gas condensate and natural gas liquids. Sour natural gas contains hydrogen sulfide (H₂S).

2. Hazard Identification

Natural gas (sour) is a colorless gas under pressure having no odor to a slight hydrocarbon odor or rotten-egg like odor. It is extremely flammable and explosive. Keep away from heat, sparks, and open flame. At high concentrations this product acts as a simple asphyxiant, which can displace oxygen in the lungs?

Large pressure drops in a natural gas process could result in temperatures low enough to cause frost bite.

DANGER!
EXTREMELY FLAMMABLE

GAS UNDER PRESSURE. MAY EXPLODE IF HEATED. MAY VENT HARMFUL CONCENTRATIONS OF HYDROGEN SULFIDE (H₂S) GAS WHICH CAN CAUSE RESPIRATORY IRRITATION AND ASPHYXIATION.

NO SMOKING!
KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. DO NOT BREATHE GAS. WEAR RESPIRATORY EQUIPMENT.

Globally Harmonized System (GHS) Information

Physical Hazards Classification

Flammable Gas, Category 1
Gas Under Pressure, Liquefied gas

Health Hazards Classification

Acute Toxicity, Category 2


Serious eye damage/eye irritation, Category 2a

Specific Target organ toxicity, Category 1 (central nervous system, cardiovascular system, respiratory system)

Environmental Hazards Classification

Acute Toxicity to the aquatic environment, Category 2

Chronic Toxicity to the aquatic environment, Category 2

GHS Label Information	
	
Symbols:	
Signal Word: Danger	
Hazard Statements:	Precautionary Statements:
<p>Physical Hazards Extremely flammable gas Contains gas under pressure, may explode if heated</p> <p>Health Hazards Fatal if inhaled Causes serious eye irritation Causes damage to central nervous system, cardiovascular system, respiratory system</p> <p>Environmental Hazards None</p>	<p>Prevention Keep away from heat/sparks/open flames/hot surfaces; Do not breathe gas; Do not eat, drink or smoke when using this product; Use only outdoors or in a well-ventilated area; Avoid release to the environment; Wear protective gloves/protective clothing/face protection Wear respiratory protection</p> <p>Response IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call for assistance IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call for assistance.</p> <p>Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate ignition sources if safe to do so</p> <p>Storage Store locked up; Protect from sunlight; Store in a well-ventilated place</p> <p>Disposal Dispose of contents/container in accordance with local/regional/national/international regulations</p>

3. Composition/Information on Ingredients

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PERCENT</u>
Natural Gas	8006-14-2	See approximate values below
Methane	8002-05-9	60-75%
Ethane	74-84-0	8-20%
Nitrogen	7727-37-9	2-9%

Carbon Dioxide	124-38-9	0-2%
Hydrogen Sulfide	7783-06-4	>.001% to 2%
Hydrocarbons	--	---

4. First Aid Measures

Eye Contact

Immediately flush eyes, while holding eyelids open, with large amounts of clean, low-pressure tepid water for at least 15 minutes. If symptoms, irritation or injury persists, worsen or develop, seek medical attention.

Skin Contact

In the event of frostbite, gently warm the effected area – do not rub. Seek medical attention.

Inhalation

Remove victim to fresh air and provide oxygen if breathing labored, shallow, or difficult. Rescuer must wear appropriate supplied air respirator to remove worker from contaminated area to fresh air. Give artificial respiration if victim is not breathing. Seek medical attention immediately.

Ingestion

Not applicable

5. Fire-Fighting Measures

Extinguishing Media

For small fires, class B fire extinguishing media such as carbon dioxide or dry chemical can be used. Water spray, fog, and/or foam are recommended for larger fires.

Special Fire Fighting Procedures and Precautions

Stop flow of gas before extinguishing fire as explosive re-ignition or chemical exposure can occur. Use water to cool containers and exposed area. Stay upwind and out of low areas. Approach with caution as gas may burn with nearly invisible flame.

Unusual Fire Explosion Hazards

None

NFPA Ratings

Health – 3

Flammability – 4

Reactivity – 0

Other – 0

Key: Least-0; Slight-1; Moderate-2; High-3; Extreme-4

6. Accidental Release Measures

Keep the public away. Isolate and evacuate the area. Stop leak if safe to do so and eliminate all ignition sources. Allow gas to dissipate and ventilate low or closed areas to reduce the danger of explosion or hydrogen sulfide exposure. Wear appropriate respirator and protective clothing.

7. Handling and Storage

Comply with all regulatory requirements. Store in suitable tanks or closed, labeled containers in a cool, well-ventilated area.

Keep away from heat, sparks or flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all gas is gone. Containers, even those that have been emptied, can contain explosive vapors. Do not puncture, cut, drill, grind, weld or perform similar operations on or near containers.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

<u>COMPONENT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV TWA</u>
Natural Gas	Not available	Not available
Methane	Not available	1000 ppm*
Ethane	Not available	1000 ppm*
Nitrogen	Not available	simple asphyxiant
Carbon Dioxide	5000 ppm	5000 ppm/STEL 30000 ppm
Hydrogen Sulfide	20 ppm ceiling	1 ppm/STEL 5 ppm

Notes:

* Aliphatic Hydrocarbon Gas (Alkane C1-C4)

Engineering Controls

Maintain air concentrations below flammable limits and occupational exposure standards for chemical components by using ventilation and other engineering controls.

Personal Protective Equipment

Eye/Face Protection

Goggles or safety glasses should be used when handling compressed gasses.

Skin Protection

Wear insulated gloves to protect from frostbite if appropriate.

Respiratory Protection

Do not enter storage compartments or hydrogen sulfide areas unless equipped with a NIOSH approved supplied air apparatus (SCBA or airline unit) with a full face-piece operated in a positive pressure mode.

9. Physical and Chemical Properties

Appearance and Odor: Colorless gas with slight hydrocarbon or no odor. Also possible sulfur (rotten egg like) odor. Note that hydrogen sulfide causes olfactory fatigue (you can not smell it at high concentrations)

pH: not applicable

Melting Point/freezing point: not applicable

Boiling Point: -259°F (methane)

Flash Point and Method:	-306°F (methane) / closed cup
Evaporation Rate:	not applicable
Flammable Limits:	(approximate % Volume in air) Lower: 5.0 Upper: 15.0 (methane)
Vapor Pressure:	not applicable
Specific Gravity:	not available
Vapor Density	<1 (Air=1)
Solubility:	not applicable
Partition coefficient (n-octanol/water):	not applicable
Auto ignition temperature	>500 °F
Decomposition temperature	not available
Viscosity	not applicable

10. Stability and Reactivity

Stability: Stable

Hazardous polymerization: Will not occur

Conditions and Materials to Avoid: Avoid heat, sparks, flame and contact with strong oxidizing agents such as nitrates, perchlorates, chlorine, and fluorine.

Hazardous Decomposition Products: Thermal decomposition products are highly dependent on the combustion conditions. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

11. Toxicological Information

Acute toxicity - Natural gas is an anesthetic at high concentrations, producing dizziness, headache, incoordination and narcosis; extremely high concentrations can cause asphyxiation and death by displacement of oxygen in the lungs. Natural gas is a simple asphyxiant unless a poisonous constituent such as hydrogen sulfide is present.

Warning. Hydrogen sulfide gas may be present in sour natural gas. Hydrogen sulfide is an extremely flammable, highly toxic gas. Hydrogen sulfide is a chemical asphyxiant. May be quickly fatal if inhaled. Exposure may result in bronchial spasm, inflammation, and edema. Exposure also may result in chemical pneumonitis and pulmonary edema - fluid in lungs.

Skin corrosion/irritation - Generally not a skin irritant.

Eye damage/irritation - Generally not an eye irritant. Pressurized gas can cause mechanical injuries to the eye.

Sensitization - Not known to cause respiratory or skin sensitization

Germ cell mutagenicity – Information not available

Carcinogenicity – Not suspected of causing cancer.

Reproductive toxicity – Not a known reproductive toxin

Specific Target Organs/Systemic Toxicity – Not applicable

Aspiration hazard – Not applicable

12. Ecological Information

None identified – Natural gas will dissipate in air.

13. Disposal Considerations

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to 40 CFR 261. However, when disposed of, it may meet the criteria of a “characteristic” hazardous waste. It is the responsibility of the user to determine if the material is considered hazardous for disposal under federal, state and local regulations.

14. Transportation Information

Department of Transportation Classification: Flammable Gas

D.O.T. proper shipping name: Natural Gas, Compressed

Other Requirements: UN 1971

Hazard Class: 2.1

Packing Group not applicable

15. Regulatory Information

TSCA This product is listed on the TSCA chemical inventory.

SARA Section 302 This product contains hydrogen sulfide which has been listed on the EPA’s extremely hazardous substance (EHS) list.

SARA Section 304 This product contains the following component(s) which in the event of a spill may be subject to SARA reporting requirements: hydrogen sulfide.

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

Acute health hazard

Fire hazard

Sudden release of pressure

SARA Section 313 This product contains hydrogen sulfide which may be subject to reporting on a toxic release inventory.

16. Other Information

Date Prepared: August 29, 2008

Revised: October 30, 2013

Last Review Date: October 30, 2013

Disclaimer:

The information and recommendations contained in this SDS are believed to be accurate at the date of its preparation. Whiting Oil and Gas Corporation makes no representations or warranties, express or implied, with respect to the accuracy or completeness of the information contained herein. Whiting Oil and Gas Corporation assumes no responsibility for incorrect handling or use of the product or the inherent hazards in the product itself.