



MATERIAL SAFETY DATA SHEET

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Natural Gas (Sour)

MSDS Number: OKE007

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CHEMICAL PRODUCT AND COMPANY IDENTIFICATION - SECTION 1

Company Identification: ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT:

Call Chemtrec: (800) 424-9300

For additional non-emergency information, call: (888) 417-6275

Product Name: Natural Gas (Sour)

Synonym(s): Methane (Sour), Natural Gas (Sour), Wellhead Gas (Sour), Marsh Gas (Sour), Petroleum Gas (Sour)

CAS Number: 8006-14-2

Chemical Formula: Mixture

HAZARDS IDENTIFICATIONS - SECTION 2

Colorless gas with a rotten egg odor.

Extremely flammable, can be ignited by heat, spark or flame. Readily forms explosive air-vapor mixtures. May release explosive vapors that can travel, be ignited at remote locations, and flash back.

This material is classified as hazardous under OSHA regulations.

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of and development of Precautionary Measures and Occupational Control Procedures recommended in this document.

Primary Route of Entry: Dermal contact, eye contact, and inhalation.

Medical Conditions Which Might be Aggravated: This substance may sensitize the heart to catecholamine induced arrhythmia. Pulmonary complications may be exaggerated.

Acute Exposure Effects:

- 1. Skin:** Vaporizing liquid may cause frostbite.
- 2. Eyes:** May cause minimal irritation, and cold burns.
- 3. Inhalation:** Simple asphyxiant, may cause irritation of the nose and throat, dizziness, drowsiness, euphoria, loss of coordination, disorientation, headache, nausea, and vomiting. In poorly ventilated areas or confined spaces, unconsciousness and asphyxiation may result. Death may result from asphyxiation. Hydrogen sulfide is toxic by inhalation. At up to 100 ppm, effects will be rotten-egg smell, burning eyes and respiratory tract irritation. If prolonged exposure up to 100 ppm, effects will be loss of smell, headache, dizziness and coughing.

HAZARDS IDENTIFICATIONS - SECTION 2 continued

Exposure from 100 to 300 ppm, in addition to above will be drowsiness, severe eye and throat irritation and possible pulmonary edema.

Exposures up to 600 ppm will cause loss of reasoning/balance and eventual unconsciousness.

- 4. Ingestion:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

COMPOSITION/INFORMATION ON INGREDIENTS - SECTION 3

<u>Chemical Name</u>	<u>CAS Number</u>	<u>% By Weight</u>
Methane	74-82-8	70-99
Ethane	74-84-0	1-12
Propane	74-98-6	0-8
Butanes	106-97-8	0-5
Pentane	109-66-0	0-3
Carbon Dioxide	124-38-9	0-1.5
Hexanes	110-54-3	0-1
Hydrogen	1333-74-0	0-<1
Hydrogen Sulfide	7783-06-4	1

Note: These analytical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

FIRST AID MEASURES - SECTION 4

Skin: Wash skin with plenty of soap and water for several minutes. In case of cold burn, immediately place affected area in warm water (105°F) and keep at this temperature until circulation returns. Get medical attention. If clothing becomes wet, drench individual with water and remove contaminated clothing if possible. Slowly warm affected area of skin.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if eye irritation persists.

Inhalation: If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.

Ingestion: No emergency care anticipated.

FIRE FIGHTING MEASURES - SECTION 5

Flash Point: -306° F (-187° C)

Method: Tagliabue Closed Cup

Auto ignition Temperature: 1000° F (538° C)

Method: N/A

Combustibility: N/A

Method: N/A

Flammable Limits in Air, % by Volume: LEL: 4% UEL: 14%

Extinguishing Media: Fight fire from protected location or maximum possible distance. Stop flow of gas before attempting to extinguish flames. Use water spray to cool fire exposed containers and to protect persons attempting to stop the flow of gas. Use flooding quantities of water as fog or spray. Use dry chemical or carbon dioxide to extinguish flames.

Special Fire Fighting Procedures: Firefighters should wear proper protective equipment and self-contained breathing apparatus. Products of combustion may contain carbon monoxide, carbon dioxide, or other toxic vapors. Do not enter enclosed area or confined space without proper protective equipment including respiratory protection.

FIRE FIGHTING MEASURES - SECTION 5 continued

Unusual Fire and Explosive Hazards: Extremely flammable, can be ignited by heat, spark, or flame. Do not expose to heat, sparks, flame, static, or other sources of ignition. When handling, use non-sparking tools, ground and bond all containers. Readily forms explosive air-vapor mixtures. May release explosive vapors that can travel, be ignited at remote locations, and flash back. Containers may explode in fire.

ACCIDENTAL RELEASE MEASURES - SECTION 6

Material is heavier than air and can accumulate in low lying areas. Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Keep people away. Stay upwind and warn of possible downwind explosion hazard. Avoid breathing vapor. Avoid contact with eyes, skin, or clothing. Wear respiratory protection and other personal protective equipment as appropriate for the potential exposure hazards.

HANDLING AND STORAGE - SECTION 7

Use spark-proof tools. Material may be at elevated temperatures and/or pressures. Exercise care when opening bleeders and sampling ports. Eyewash and safety shower should be available nearby when this product is handled or used. Ground and bond shipping container, transfer line, and receiving container. Keep away from heat, sparks, flame, and other sources of ignition. Outside storage is recommended.

EXPOSURE CONTROLS/PERSONAL PROTECTION - SECTION 8

<u>Chemical Name</u>	<u>OSHA PEL (ppm)</u>	<u>ACGIH TLV (ppm)</u>	<u>Other (ppm)</u>
Methane	None	None	None
Ethane	None	None	None
Propane	1000	1000	2100 IDLH
Butanes	None	800	None
Pentane	1000	120	Ceiling 610, 1500 IDLH
Carbon Dioxide	10,000	5,000	40,000 IDLH, 30,000 STEL
Hexanes	500	50	1100 IDLH
Hydrogen	None	None	None
Hydrogen Sulfide	Ceiling 20	Ceiling 10	100 IDLH

Eye Protection: Wear safety glasses, chemical type goggles, or face shield.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory Protection: Air supplied respirators should always be worn when airborne concentrations of the contaminant are known.

Ventilation: Use explosion-proof equipment to maintain adequate ventilation to meet occupational exposure limits, prevent accumulation of explosive air-gas mixtures, and avoid significant oxygen displacement.

PHYSICAL AND CHEMICAL PROPERTIES - SECTION 9

Appearance: Colorless Gas

Odor: Rotten Egg

Boiling Point: -162°C (-259°F)

Vapor Density: 1.19 (Air = 1)

Viscosity: Not Determined

Specific Gravity: Not Determined

Flash Point: -306°F (-187°C)

Auto ignition Temperature: 1000°F (538°C)

Flammable Limits in Air, % by Volume: LEL: 4% UEL: 14%

Solubility in Water (wt. %): Not Determined

Solubility in Other Solvents: Not Determined

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

STABILITY AND REACTIVITY - SECTION 10

Stability: Stable under normal conditions.

Incompatibility: May react with oxidizers.

Hazardous Decomposition Products: Combustion may produce carbon monoxide, carbon dioxide and sulfur dioxide.

Hazardous Polymerization: Polymerization will not occur.

TOXICOLOGICAL INFORMATION - SECTION 11

Toxicity: Highly toxic by inhalation

Teratogenicity: Not established

Reproductive Toxicity: Not established

Mutagenicity: Not established

Synergistic Products: Not established

Sensitization to Product: Not established

Carcinogenicity: Contains more than 0.1% by weight of a material listed as a potential carcinogen:

NTP
No

IARC
No

OSHA
No

Other Chronic Effects: Not Determined

Signs and Symptoms of Overexposure: Skin irritation, nausea, fatigue, sleepiness, confusion, dizziness, headache, diarrhea, vomiting, narcosis, unconsciousness, and death by/from asphyxiation.

ECOLOGICAL INFORMATION - SECTION 12

No data is available on the adverse effects of this material on the environment. Neither COD nor BOD data are available.

DISPOSAL CONSIDERATIONS - SECTION 13

Dispose of container and unused contents in accordance with federal, state and local requirements.

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TRANSPORT INFORMATION - SECTION 14

DOT

Proper Shipping Name: Natural gas, compressed

Hazard Class/I.D. No./Packing Group: 2.1, UN1971.

Label: Flammable Gas and Poison

I.M.O.

Proper Shipping Name: Natural gas, compressed

Hazard Class/I.D. No./Packing Group: 2.1, UN1971

Label: Flammable Gas and Poison

I.C.A.O./I.A.T.A.

Proper Shipping Name: Natural gas, compressed

Hazard Class/I.D. No./Packing Group: 2.1, UN1971

Label: Flammable Gas and Poison, Cargo Aircraft Only

REGULATORY INFORMATION - SECTION 15

TSCA Inventory: No

Reportable Quantity (RQ) Under US EPA CERCLA Regulations: 100 lbs.

SARA Hazard Notification Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Yes.

Section 313 Toxic Chemical(s): Not listed

Hazardous Chemical(s) Under OSHA Hazard Communication Standard: Yes

OTHER INFORMATION - SECTION 16

Hazard Ratings:

NFPA

Health --2

Fire -- 4

Reactivity --1

Specific Hazard -- N/A.

HMIS

Health -- 2

Flammability -- 4

Reactivity -- 1

PPE -- N/A

OTHER INFORMATION - SECTION 16 continued

H₂S TOXICITY CHART			
CONCENTRATION			PHYSICAL EFFECTS
Percent	Parts per Million	Grains per 100 scf	
0.001	10	0.63	Possible eye irritation
0.002	20	1.26	OSHA Ceiling level; safe for 8 hour exposure
0.005	50	3.14	OSHA Peak level; exposure to concentrations between Ceiling and Peak level acceptable only for a 10 minute period per 8-hours
0.01	100	6.29	NIOSH's IDLH level (Immediately Dangerous to Life or Health); coughing, eye irritation, loss of sense of smell in 3-15 minutes
0.02	200	12.58	Significant eye & respiratory irritation
0.05	500	31.45	Dizziness; breathing ceases within a few minutes
0.07	700	44.02	Breathing ceases; death will result if not rescued quickly
0.10	1,000	62.89	Death
1	10,000	628.93	

To the best of our knowledge, the information contained herein is accurate. However, neither ONEOK, Inc. nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.