

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Natural Gas
Product form : Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

PDC Energy Inc.
1775 Sherman St. #3000
Denver, CO 80203
1-303-860-5800

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Simple Asphy SIAS
Flam. Gas 1 H220
Press. Gas (Liq.) H280
STOT SE 2 H371

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : **Danger**

Hazard statements (GHS-US) : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
H371 - May cause damage to organs (heart).
SIAS - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US) : P210 - Keep away from heat, open flames, sparks. No smoking.
P260 - Do not breathe gas, spray, vapours, mist, fume.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Natural gas, dried	(CAS-No.) 68410-63-9	100*
Methane (as compressed gas)	(CAS-No.) 74-82-8	< 90*
Ethane	(CAS-No.) 74-84-0	< 1*
Hydrogen Sulfide	(CAS-No.) 7783-06-4	<1.0

*In accordance with paragraph (i) of the OSHA Hazard Communication Standard (29 CFR §1910.1200), the specific chemical identity or exact weight % has been withheld as a trade secret

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SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.
- First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing is affected. If breathing is difficult, supply oxygen.
- First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention.
- First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing if pain, blinking, or irritation develops or persists, get medical attention. Continue rinsing.
- First-aid measures after ingestion : IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects : May displace oxygen and cause rapid suffocation. May cause damage to organs (heart).
- Symptoms/effects after inhalation : May displace oxygen and cause rapid suffocation.
- Symptoms/effects after skin contact : May cause skin irritation.
- Symptoms/effects after eye contact : Direct contact with eyes is likely to be irritating.
- Symptoms/effects after ingestion : May cause gastrointestinal irritation.
- Chronic symptoms : May cause damage to organs through prolonged or repeated exposure.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide (CO₂). Water spray.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Extremely flammable gas.
- Explosion hazard : Contains gas under pressure; may explode if heated.
- Reactivity : No dangerous reactions known under normal conditions of use.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment. Prevent human exposure to fire, fumes, smoke and products of combustion.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Evacuate area. Keep upwind. Ventilate area. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in section 8.
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Stop leak if safe to do so.
- Methods for cleaning up : Exclude sources of ignition and ventilate the area. Ground equipment electrically. Use explosion-proof equipment.

6.4. Reference to other sections

See Sections 8 and 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Provide good ventilation in process area to prevent formation of vapour. Do not breathe gas. Natural gas can contain toxic and deadly concentrations of H₂S. Avoid contact with skin, eyes and clothing. If H₂S is encountered, review the Safety Data Sheet for proper handling instructions of Hydrogen Sulfide. Keep away from sources of ignition - No smoking. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store in a dry place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Methane (as compressed gas) (74-82-8)	
Remark (ACGIH)	asphyxia (See Appendix F: Minimal Oxygen Content)
Remark (OSHA)	OELs not established
Ethane (74-84-0)	
ACGIH TWA (ppm)	1000 ppm Aliphatic hydrocarbon gases: Alkane C1-4
Remark (OSHA)	OELs not established
Natural gas, dried (68410-63-9)	
Remark (ACGIH)	OELs not established
Remark (OSHA)	OELs not established
Hydrogen sulfide (7783-06-4)	
ACGIH TWA (ppm)	1 ppm
ACGIH STEL (ppm)	5 ppm
OSHA PEL (Ceiling) (ppm)	20 ppm

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment : Gloves. Protective goggles. Protective clothing. Insufficient ventilation: wear respiratory protection.



Hand protection : Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified and selected according to regional or national standards. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate PVC, or vinyl. Suitable gloves should be recommended by the glove supplier.

Eye protection : Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to spraying liquid or airborne particles.

Skin and body protection : Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection : Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with gas filter (type A2). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas
Color : Colorless.
Odor : Distinctive "natural gas".
Odor Threshold : No data available
pH : No data available

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Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: -162 °C (-259 °F)
Flash point	: Flammable Gas
Auto-ignition temperature	: 482 - 632 °C (900 - 1170 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Lower Flammable Limit (LFL)	: 3.8 – 6.5
Upper Flammability Limit (UFL)	: 13 – 17
Vapor pressure	: 40 atm @ -86 °C (-187 °F)
Relative vapor density at 20 °C	: 0.6
Relative density	: 0.4 @ -164 °C (-263 °F)
Solubility	: Water: 3.5 %
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: 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 recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

None under normal use.

10.4. Conditions to avoid

Ignition sources. Heat. Open flame. Sparks.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Methane (as compressed gas) (74-82-8)	
LD50 oral rat	study technically not feasible
LD50 dermal rat	study technically not feasible
LC50 inhalation rat (mg/l)	not classified

Ethane (74-84-0)	
LC50 inhalation rat (mg/l)	658 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause damage to organs (heart).

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Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May displace oxygen and cause rapid suffocation.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Direct contact with eyes is likely to be irritating.
Symptoms/effects after ingestion	: May cause gastrointestinal irritation.
Chronic symptoms	: May cause damage to organs through prolonged or repeated exposure.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Do not discharge to public wastewater systems without permit of pollution control authorities. No discharge to surface waters is allowed without an NPDES permit.

Product/Packaging disposal recommendations : Do not allow the product to be released into the environment. Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1971 Natural gas, compressed, 2.1
UN-No.(DOT)	: 1971
DOT NA no.	: UN1971
Proper Shipping Name (DOT)	: Natural gas, compressed
Class (DOT)	: 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
Hazard labels (DOT)	: 2.1 - Flammable gas



DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : E - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

Additional information

Emergency Response Guide (ERG) Number : 115

Other information : No supplementary information available.

Transport by sea (IMDG)

No additional information available

Air transport (IATA)

No additional information available

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SECTION 15: Regulatory information

15.1. US Federal regulations

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All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory or are exempt All chemical substances in this product are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL) or are exempt	
SARA Section 311/312 Hazard Classes	Health hazard - Specific target organ toxicity (single or repeated exposure) Physical hazard - Flammable (gases, aerosols, liquids, or solids) Physical hazard - Gas under pressure

15.2. International regulations

No additional information available.

15.3. US State regulations

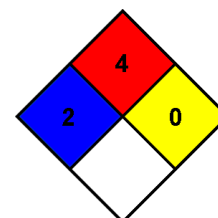
This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

Methane (as compressed gas) (74-82-8)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List
Ethane (74-84-0)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revision 1.0: New SDS Created.
Revision date : 5/17/2018
Other information : Author: J.L.J.

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.
NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 2
Flammability : 4
Physical : 0
Personal protection :

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product