

Safety Data Sheet

| Section 1: Identification of the substance or mixture and of the supplier | | Rev: 02/2022 |
|---|---|--------------|
| Product Name: | Liquefied Natural Gas | |
| Synonyms/Other Means of Identification: | LNG, Liquid Methane, Natural Gas Refrigerated Liquid | |
| Intended Use: | Fuel | |
| Manufacturer Address: | Piedmont Natural Gas Company, Inc. 4720 Piedmont Row Drive Charlotte, NC 28210 | |
| Emergency Health and Safety Number: | Chemtrec: 800.424.9300 (24 Hours) | |
| Customer Service: | 800.752.7504 | |
| URL: | www.piedmontng.com ; www.duke-energy.com | |
| CASN: | 74-82-8 | |

| Section 2: Hazard(s) Identification | Rev: 02/2022 |
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GHS Classification

Flammable gases – Category 1
Gases under pressure – Refrigerated Liquefied Gas

GHS Label Elements



Signal Word

DANGER

Hazard Statements

Extremely flammable gas
Contains refrigerated gas; may cause cryogenic burns or injury
Gas may reduce oxygen in confined spaces.

Precautionary Statement(s):

Do not use or handle unless all safety precautions have been read and understood.

P210 – Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources, including internal combustion engines. No smoking.

Take action to prevent static discharge, including static discharge from cell phones and other electronic devices.

Wear cold insulating gloves, a cold insulating apron, eye protection, and face shield.

If exposed to liquid, seek immediate medical attention.

Eliminate all ignition sources if safe to do so.

Limbs affected by frostbite may be thawed with lukewarm water. Do not rub affected area. See immediate medical attention.

Do not extinguish fires from leaking gas unless leak can be stopped safely.

Use only non-sparking tools.

Supplementary Hazard Information:

High concentrations of LNG vapors may displace oxygen, especially in a confined space.

LNG and its vapors do not exhibit the characteristic odor of natural gas.

Containers of LNG are typically under pressure and temperature-controlled conditions; These containers may explode if heated or if temperature control is not maintained.

Storage: Store well in a well-ventilated place. Store locked-up

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| Section 3: Composition / Information on Ingredients | Rev: 02/2022 |
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Liquefied natural gas (LNG) is a cryogenic liquid derived from natural gas by processing. LNG consists primarily of methane and ethane; the table below identifies the components in LNG that may be present in concentrations of 1 percent or more by volume. For health and safety determination purposes, the LNG composition listed in the table below represents the widest range of components observed in the LNG produced and stored by Duke Energy based upon the results of sample analysis. The following constituents may also be present in LNG at concentrations less than 1 percent by volume: iso-butane, normal butane, pentanes, hexanes, heavier hydrocarbons (C6+), and nitrogen.

| Component | CAS No. | Concentration (mole%) |
|-----------|-----------|-----------------------|
| Methane | 74-82-8 | 67-97 |
| Ethane | 74-84-0 | 3-29 |
| Propane | 74-98-6 | 0-4 |
| Nitrogen | 7727-37-9 | 0-4 |

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| Section 4: First Aid Measures | Rev: 02/2022 |
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Eye Contact: Contact with product may cause frostbite. In case of frostbite or freeze burns, gently soak the eyes with cool to lukewarm water. DO NOT WASH THE EYES WITH HOT WATER (i.e., over 105° F). Open eyelids wide to allow liquid to evaporate. If the person cannot tolerate light, protect the eyes with a bandage or handkerchief. Do not introduce ointment into the eyes without medical advice. Seek immediate medical attention.

Skin Contact: Contact with product may cause frostbite. In case of frostbite or freeze burns, remove contaminated clothing and flush the affected area with cool to lukewarm water. Immediately place frozen area in a circulating warm water bath or in flowing warm water (100 to 105° F). DO NOT USE HOT WATER (i.e., over 105° F) OR DRY HEAT. Seek immediate medical attention if blistering, tissue freezing, or frostbite has occurred. Under no circumstances should the frozen part be rubbed, either before or after warming.

Inhalation (Breathing): If Inhalation of large quantities of LNG vapors may cause central nervous system

depression with nausea, headache, dizziness, vomiting, and incoordination. LNG (and associated vapor) is a simple asphyxiant and may cause loss of consciousness, serious injury, or death by displacing air, thereby resulting in insufficient oxygen to support life. Prompt medical attention is strongly recommended in all cases of inhalation overexposure. Rescue personnel should be equipped with a self-contained breathing apparatus. Remove inhalation victims to fresh air quickly. If inhalation victim is not breathing, ensure that their airways are open and administer cardiopulmonary resuscitation (CPR). If necessary, have a trained person administer air or oxygen once breathing is restored. Seek immediate medical treatment.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide and inadequate oxygen levels, which may cause loss of consciousness, serious injury or death.

Ingestion (Swallowing): This material is a gas under atmospheric temperature and pressure conditions and ingestion is unlikely. Seek immediate medical attention if material is ingested.

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| Section 5: Fire-Fighting Measures | Rev: 02/2022 |
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General Fire Hazards: Dangerous fire and explosion hazard when exposed to heat, sparks, or flame. Natural gas is lighter than air and may travel long distances to a point of ignition and flash back.

Container may explode in heat or fire.

NEPA 704 Hazard Class



Health: 3 Flammability: 4 Instability: 0

(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Contents under pressure.

Extinguishing Media: Appropriate fire extinguishing media include dry chemical, carbon dioxide, halon and high expansion foam.

Fire Fighting Instructions: Fire should NOT be extinguished unless flow of gas can be immediately stopped. Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Do not direct water at the source of the leak, pooled LNG, or safety devices; the indiscriminate use of water on surfaces of cryogenic containers and piping can lead to heavy icing, causing excessive loads on structures and the failure of valves, instrumentation, and other control devices. Application of water to pools of LNG will cause the LNG to vaporize more rapidly, generating more gas to feed a fire or create a larger vapor cloud. For a

large fire, the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Isolate area particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion (smoke). Oxides of nitrogen and sulfur may also be formed.

See Section 9 for Physical and Chemical Properties including Flash Point and Flammable (Explosive) Limits.

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| Section 6: Accidental Release Measures | Rev: 02/2022 |
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Recovery and Neutralization: Stop the source of the release, if safe to do so.

Materials and Methods for Clean-Up: Do not flush down sewer or drainage systems. Do not touch spilled liquid (frostbite/freeze burn hazard!). Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction, stay upwind and uphill, if possible. Evaluate the direction of product travel. Vapor cloud may be white, but color will dissipate as cloud disperses – fire and explosion hazards are still present!

Personal Precautions and Protective Equipment

Extremely flammable. During releases / holes in pipe, pipe may become cold and cause (frostbite/freeze burn hazard!). See Section 8: Exposure Controls / Personal Protection.

Environmental Precautions

Do not flush down sewer or drainage systems. Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods for Containment and Clean-Up

Notify relevant authorities in accordance with all applicable regulations including reporting quantities to Emergency Response Centers as necessary. Recommended measures are based on the most likely release scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

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| Section 7: Handling and Storage | Rev: 02/2022 |
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Precautions for safe handling

Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes).

Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g., carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Conditions for safe storage

Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers.

Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125° F (51.6° C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

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| Section 8: Exposure Controls / Personal Protection | Rev: 02/2022 |
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| Component | ACGIH | OSHA PEL (ppm) | Other |
|-----------|--|----------------|-------|
| Methane | 1000 ppm TWA as Aliphatic Hydrocarbons C1-C4 | --- | --- |
| Ethane | 1000 ppm TWA as Aliphatic Hydrocarbons C1-C4 | --- | --- |
| Propane | 1000 ppm TWA as Aliphatic Hydrocarbons C1-C4 | 2500 | --- |
| Nitrogen | 1000 ppm TWA | --- | --- |

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls

Provide adequate ventilation to keep gas and vapor concentrations below occupational exposure and flammability limits (less than 20% of the lower explosive level) and maintain sufficient oxygen levels. In confined spaces, local and general ventilation should be provided. Follow appropriate confined space entry procedures. Use explosion proof general ventilation and lighting in classified/controlled areas. Be sure explosion proof flashlights and equipment are used.

Eye/Face Protection

The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is a potential for liquid to contact the eye. Depending upon the conditions of use, a face shield may also be necessary.

Skin/Hand Protection

Wear thermal insulating gloves and a face shield when working with materials that present thermal hazards (hot or cold). Ensure that the protective equipment is rated for the temperature of the material to be handled. Flame retardant clothing is recommended in any situation where LNG vapors may ignite accidentally.

Respiratory Protection

A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

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| Section 9: Physical and Chemical Properties | Rev: 02/2022 |
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Note: Unless otherwise stated, values are determined at 20° C (68° F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

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| Appearance: | Colorless |
| Physical Form: | Liquified gas (refrigerated gas) |
| Odor: | Odorless |
| Odor Threshold: | No data |
| pH: | Not applicable |
| Vapor Density (air=1): | 0.554 |
| Initial Boiling Point/Range: | -259° F / -162° C |
| Melting/Freezing Point: | No data |
| Solubility in Water: | Slight |
| Partition Coefficient (n-octanol/water) (Kow): | No data |
| Percent Volatile: | 100% |
| Flammability (solid, gas): | Gas, Extremely Flammable |
| Evaporation Rate (nBuAc=1): | No data |
| Flash Point: | -299° F / -184 °C |
| Test Method: | (estimate) |
| Lower Explosive Limits (vol % in air): | 5% |
| Upper Explosive Limits (vol % in air): | 15% |
| Auto-ignition Temperature: | 999 °F / 537 °C |
| Specific Gravity | 0.43 – 0.47 |

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| Section 10: Stability and Reactivity | Rev: 02/2022 |
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Chemical Stability

Stable under normal ambient and anticipated conditions of use.

Conditions to Avoid

Avoid all possible sources of ignition. Heat will increase pressure in a storage tank or pipe.

Materials to Avoid (Incompatible Materials)

Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous Decomposition Products

Not anticipated under normal conditions of use.

Hazardous Polymerization

Not known to occur.

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| Section 11: Toxicological Information | Rev: 02/2022 |
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Information on Toxicological Effects of Substance/Mixture

| Acute Toxicity | Hazard | LC50 / LD50 Data | Additional Information |
|------------------------|------------------------------------|------------------------------------|-------------------------------|
| Methane (74-82-8) | Inhalation | LC50 Mouse 326 g/m ³ 2h | |
| Ethane (74-84-0) | Inhalation | LC50 Rate 658 mg/L 4h | |
| Skin absorption | Skin absorption is not anticipated | | Not applicable |
| Ingestion (Swallowing) | Ingestion is not anticipated | | Not applicable |

Inhalation: LNG vapors are not toxic; however, if LNG vapors escape and accumulate in a confined area or if large amounts of LNG vapor are released as a result of a spill or leak, the LNG vapors may displace air from the area and cause loss of consciousness, serious injury, or death.

Skin Absorption: Contact with liquefied or pressurized gas will cause severe frostbite, but otherwise, this product is not expected to cause skin irritation.

Serious Eye Damage/Irritation: Contact with the liquefied or pressurized gas may cause eye damage and swelling. Otherwise, this product is not expected to cause eye irritation.

Skin Corrosion/Irritation: Contact with liquefied or pressurized gas will cause severe frostbite, but otherwise, this product is not expected to cause skin irritation.

Skin Sensitization: Skin contact should be avoided, and sensitization as a result of skin contact is not expected.

Signs and Symptoms: Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness, and death.

Carcinogenicity: LNG is not expected to cause cancer. This substance is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or OSHA.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus.

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| Section 12: Ecological Information | Rev: 02/2022 |
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Toxicity

Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment. Classification: No classified hazards.

Persistence and Degradability

The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative Potential

Not regarded as having the potential to bioaccumulate.

Mobility in Soil

No data available

Other Adverse Effects

None anticipated.

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| Section 13: Disposal Considerations | Rev: 02/2022 |
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It is preferable to dispose of product by burning in a properly designed flare. Venting of vapor directly to the atmosphere is not recommended. LNG is not typically managed as a waste, but if cylinders of LNG are to be disposed, the disposal of this material should comply with all applicable federal, state, and local regulations.

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| Section 14: Transport Information | Rev: 02/2022 |
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Transport in accordance with United States Department of Transportation (DOT) regulations governing the transportation of hazardous materials.

UN Number: UN1972

UN Proper Shipping Name: Natural gas, refrigerated liquid

Transport Hazard Class: 2.1

Packing Group: N/A*

Environmental Hazards: Refer to Section 15 for reportable quantities.

Special Precautions: Refer to Emergency Response Guide 115. Refer to 49 CFR 173.318 for additional information relating to the transportation of LNG.



DOT Shipping Label: Flammable Gas

Placard: Flammable Gas/1972

*N/A indicates not applicable; LNG is not authorized to be transported in non-bulk packages under DOT regulations.

International Maritime Dangerous Goods (IMDG)

Shipping Description: UN1972, Natural gas, refrigerated, 2.1
Non-Bulk Package Marking: Natural gas, compressed, UN1972
Labels: Flammable gas
Placards/Marking (Bulk): Flammable gas / 1972
Packaging - Non-Bulk: P200
EMS: F-D, S-U

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| Section 15: Regulatory Information | Rev: 02/2022 |
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CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: Yes
Chronic Health: No
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

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| Section 16: Other Information | Rev: 02/2022 |
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Date of Issue: December 14, 2021
Status: FINAL
Previous Issue Date: April 2, 2012
Revised Sections or Basis for Revision: Identified Hazards (Section 2) Precautionary Statement(s) (Section 2) First Aid (Section 4) Shipping information (Section 14) Regulatory information (Section 15)

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists;
CASRN = Chemical Abstracts Service Registry Number;
CEILING = Ceiling Limit (15 minutes);
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act;
EPA = Environmental Protection Agency;
GHS = Globally Harmonized System;
IARC = International Agency for Research on Cancer;
INSHT = National Institute for Health and Safety at Work;
IOPC = International Oil Pollution Compensation;
LEL = Lower Explosive Limit;
NE = Not Established;
NFPA = National Fire Protection Association;

NTP = National Toxicology Program;
OSHA = Occupational Safety and Health Administration;
PEL = Permissible Exposure Limit (OSHA);
SARA = Superfund Amendments and Reauthorization Act;
STEL = Short Term Exposure Limit (15 minutes);
TLV = Threshold Limit Value (ACGIH);
TWA = Time Weighted Average (8 hours);
UEL = Upper Explosive Limit;

Disclaimer:

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