Hydrocarbon Mixture in Methane

SDS Number: NLB 5050 Revision Date: 4/6/2016

1 PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

NorLab a division of Norco
898 W. Gowen Rd.
Boise, ID 83705

Contact:	**Quality Dept.**
Phone:	**208-336-1643**
Fax:	**208-433-6160**
Web:	**www.norlab-gas.com**

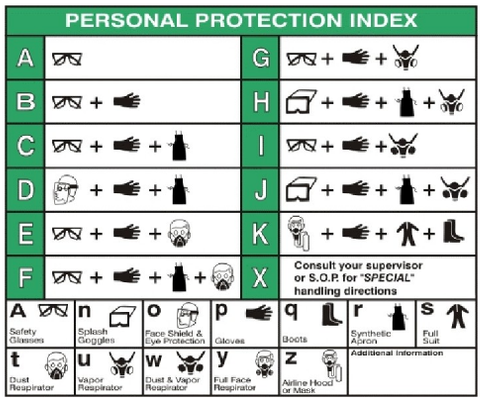
Product Name:	**Hydrocarbon Mixture in Methane**
Revision Date:	**4/6/2016**
Version:	**2**
SDS Number:	**NLB 5050**
Common Name:	**Not Applicable**
CAS Number:	**Not Available - Gas Mixture**
EPA Number:	**Not Available**
Chemical Family:	**Hydrocarbon blend**
Synonyms:	**Natural Gas Pipeline Mixture**
Product Use:	**Synthetic / Analytical Chemistry**

For Transportation Emergency Contact CHEMTREC: 800-424-9300

2 HAZARDS IDENTIFICATION

Route of Entry:	**Eyes; Inhalation; Skin;**
Target Organs:	**Nervous system; Respiratory system;**
Inhalation:	**Inhalation of high methane concentrations may cause central nervous system depression with dizziness, disorientation, in-coordination, nausea, and narcosis. High concentrations may also cause cardiac sensitization resulting in irregular heartbeat and may make the individual more susceptible to cardiac effects of substances such as epinephrine and adrenaline.**
Skin Contact:	**Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.**
Eye Contact:	**Contact with rapidly expanding gas near the point of release may cause frostbite.**
Ingestion:	**Not anticipated. Product is a gas at normal conditions.**

NFPA: Health = 1, Fire = 4, Reactivity = 0
HMIS III: Health = 1, Fire = 4, Physical Hazard = 3



GHS Signal Word: DANGER

GHS Hazard Pictograms:

GHS Classifications:

Physical, Gases Under Pressure, Compressed Gas
Physical, Flammable Gases, 1
Physical, Flammable Gases, B

GHS Hazard Phrases:

H280 - Contains gas under pressure; may explode if heated
H220 - Extremely flammable gas
H231 - May react explosively even in the absence of air at elevated pressure and/or temperature
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.
CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR.

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
P220 - Keep/Store away from clothing/combustible materials.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+313 - IF exposed or concerned: Get medical advice/attention.
P370+376 - In case of fire: Stop leak if safe to do so.
P377 - Leaking gas fire: Do not extinguish unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG10 - Use only with equipment rated for cylinder pressure.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
106-97-8	0.0001-1%	Butane
75-28-5	0.0001-1%	Isobutane
78-78-4	0.0001-1%	Isopentane
109-66-0	0.0001-1%	Pentane
142-82-5	0.0001-1%	Heptane
111-65-9	0.0001-1%	Octane
111-84-2	0.0001-1%	Nonane
110-54-3	0.0001-0.0999%	Hexane
124-38-9	0.0001-2.99%	Carbon dioxide
7727-37-9	0.0001-5%	Nitrogen
74-98-6	0.0001-2%	Propane
74-84-0	0.0001-8%	Ethane
74-82-8	73.99-99.9%	Methane

4 FIRST AID MEASURES

Inhalation: **PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. RESCUE PERSONNEL SHOULD BE EQUIPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted (artificial) respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.**

Skin Contact: **None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.**

Eye Contact: **None Required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.**

Ingestion: **Not a direct hazard.**

5 FIRE FIGHTING MEASURES

Flammability: **Flammable Gas**
Flash Point: **-369 F; -223 C (Methane)**
Burning Rate: **Not Available**
Autoignition Temp: **999 F; 537 C (Methane)**
LEL: **5% (Methane)**
UEL: **15% (Methane)**

Flammable gas. Cylinder may rupture violently from pressure when involved in a fire situation. Stop flow of gas before extinguishing fire if safe to do so. Do not extinguish the fire until the supply is shut off as otherwise an explosive re-ignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Use non-sparking tools to close container valves. Keep containers cool with water spray. Continue to cool fire-exposed cylinders until well after flames are extinguished. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions. Continue to cool fire-exposed cylinders until well after flames are extinguished.

6 ACCIDENTAL RELEASE MEASURES

Immediately extinguish all ignition sources and evacuate all personnel from affected area. No smoking, flares, sparks, or flames in hazard area. Use appropriate protective equipment. Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Provide maximum explosion proof ventilation and ventilate enclosed areas. If leak is in container or container valve contact the appropriate emergency telephone number listed in Section 1 or call your closest Norco/NorLab location. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs.

7 HANDLING AND STORAGE

Handling Precautions:

Separate flammable mixture from oxygen and other oxidizers by a minimum distance of 20 ft. or by a 5ft. high barrier with a minimum fire resistance rating of a half hour.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

This mixture is a Flammable Gas! Store and use only in appropriate locations as specified by the NEC (National Electrical Code). Containers and all piping and associated material handling equipment must be Grounded /Bonded according to NEC during use to prevent the accumulation of static electricity which can act as an ignition source.

Storage Requirements:

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 degrees F (52 degrees C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" sign in the storage or use area.

For additional recommendations consult Compressed Gas Association Pamphlet P-1.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: **Provide general room ventilation and local exhaust to prevent accumulation above the exposure limit and to maintain oxygen levels above 19.5%. Mechanical ventilation should be designed in accordance with electrical codes.**

Personal Protective Equip: **HMIS PP, B | Safety Glasses, Gloves**

Butane (106-97-8) [0.0001-1%]
USA NIOSH (TWA/REL): 800 ppm; 1,900 mg/m3
USA ACGIH (TWA/TLV): 1,000 ppm
Central Nervous System impairment Cardiac sensitization

Isobutane (75-28-5) [0.0001-1%]

USA NIOSH (TWA/REL): 800 ppm; 1,900 mg/m3
USA ACGIH (TWA/TLV): 1,000 ppm

Isopentane (78-78-4) [0.0001-1%]
USA ACGIH (TWA/TLV): 600 ppm
Peripheral neuropathy

Pentane (109-66-0) [0.0001-1%]
USA NIOSH (TWA/REL): 120 ppm; 350 mg/m3
USA ACGIH (TWA/TLV): 600 ppm
Peripheral neuropathy

Heptane (142-82-5) [0.0001-1%]
USA NIOSH (TWA/REL): 85 ppm; 350 mg/m3
USA ACGIH (TWA/TLV): 400 ppm
Central Nervous System impairment
Upper Respiratory Tract irritation

Octane (111-65-9) [0.0001-1%]
USA NIOSH (TWA/REL): 75 ppm; 350 mg/m3
USA ACGIH (TWA/TLV): 300 ppm

Hexane (110-54-3) [0.0001-0.0999%]
USA NIOSH (TWA/REL): 50 ppm; 180 mg/m3
USA ACGIH (TWA/TLV): 50 ppm
Central Nervous System impairment
Eye irritation
Peripheral neuropathy
Substances for which there is a Biological Exposure Index or Indices (see BEI section)
Danger of cutaneous absorption

Carbon dioxide (124-38-9) [0.0001-2.99%]
USA NIOSH (TWA/REL): 5000 ppm; 9000 mg/m3; Normal constituent of air (about 300 ppm).
USA ACGIH (TWA/TLV): 5000 ppm

Nitrogen (7727-37-9) [0.0001-5%] : no data available

Propane (74-98-6) [0.0001-2%]
USA NIOSH (TWA/REL):1000 ppm; 1800 mg/m3
USA ACGIH (TWA/TLV): 1000 ppm

Methane (74-82-8) [73.99-99.9%]
USA ACGIH (TWA/TLV): 1000 ppm
Central Nervous System impairment Cardiac sensitization

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	**Colorless Gas**		
Physical State:	**Gas**	**Odor:**	**Hydrocarbon Odor**
Odor Threshold:	**Not Availble**	**Molecular Formula:**	**Mixture**
Particle Size:	**Not Applicable**	**Solubility:**	**Slightly Soluble**
Spec Grav./Density:	**Not Available**	**Softening Point:**	**Not Applicable**
Viscosity:	**Not Applicable**	**Percent Volatile:**	**100%**
Boiling Point:	**Not Available**	**Freezing/Melting Pt.:**	**Not Available**
Flammability:	**Flammable Gas**	**UFL/LFL:**	**15% / 5% (Methane)**

10 STABILITY AND REACTIVITY

Stability:	**Avoid sources of ignition such as sparks, hot spots, welding flames and lighted cigarettes which may yield toxic and/or corrosive decomposition products.**
Conditions to Avoid:	**Oxidizers. Avoid heat, sparks, and flame.**
Materials to Avoid:	**Oxidizing Materials, combustible materials, halogen compounds**
Hazardous Decomposition:	**Oxides of carbon**
Hazardous Polymerization:	**Will not occur.**

11 TOXICOLOGICAL INFORMATION

Butane (106-97-8) [0.0001-1%]
Acute toxicity:
Oral LD50 no data available
Inhalation LC50 LC50 Inhalation - rat - 4 h - 658,000 mg/m3
Dermal LD50
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System):
no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System):
no data available
Aspiration hazard: no data available
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Signs and Symptoms of Exposure: Central nervous system depression, giddiness, Shortness of breath, narcosis, Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite., Exposure can cause numbness, tingling, and weakness in extremities., Cyanosis, Pulmonary edema. Effects may be delayed., Abdominal pain, Nausea, Vomiting
Synergistic effects: no data available
Additional Information: RTECS: EJ4200000

Isobutane (75-28-5) [0.0001-1%]
Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available
Aspiration hazard: no data available
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: narcosis, Dermatitis
Synergistic effects: no data available
Additional Information: RTECS: TZ4300000

Isopentane (78-78-4) [0.0001-1%]
Acute toxicity: no data available
Inhalation: Irritating to respiratory system.
Dermal: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Specific target organ toxicity - single exposure: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: May be fatal if swallowed and enters airways.
Additional Information: RTECS: EK4430000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Liver - Irregularities - Based on Human Evidence

Pentane (109-66-0) [0.0001-1%]
Acute toxicity:
Oral LD50 LD50 Oral - mouse - 5,000 mg/kg
Inhalation LC50 LC50 Inhalation - rat - 4 h - 364,000 mg/m3
Dermal LD50 LD50 Dermal - rabbit - 3,000 mg/kg

Other information on acute toxicity no data available
Skin corrosion/irritation: Skin - rabbit - No skin irritation - OECD Test Guideline 404
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: Genotoxicity in vitro - Ames test - S. typhimurium - negative
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System):
May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure (Globally Harmonized System):
no data available
Aspiration hazard: May be fatal if swallowed and enters airways.
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness. Ingestion May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Prolonged or repeated contact with skin may cause:, defatting, Dermatitis, Central nervous system depression, damage to the lungs.
Synergistic effects: no data available
Additional Information: RTECS: RZ9450000

Heptane (142-82-5) [0.0001-1%]
Acute toxicity: no data available
LC50 Inhalation - rat - 4 h - 103,000 mg/m3
Inhalation: Irritating to respiratory system.
Dermal: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: Eyes - rabbit Result: No eye irritation (OECD Test Guideline 405)
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACG IH, NTP, or EPA classification.
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Specific target organ toxicity - single exposure: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: May be fatal if swallowed and enters airways.
Additional Information: RTECS: MI7700000
Prolonged or repeated exposure to skin causes defatting and dermatitis., Central nervous system depression, narcosis, Damage to the lungs.
Stomach - Irregularities - Based on Human Evidence

Octane (111-65-9) [0.0001-1%]
Acute toxicity:

Oral LD50 Inhalation LC50 LC50 Inhalation - rat - 4 h - 118,000 mg/m3
Dermal LD50 no data available
Other information on acute toxicity
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System):
May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure (Globally Harmonized System):
no data available
Aspiration hazard: The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness. Ingestion May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Central nervous system depression, narcosis
Synergistic effects: no data available
Additional Information: RTECS: RG8400000

Hexane (110-54-3) [0.0001-0.0999%]
Acute toxicity:
LD50 Oral - rat - 25,000 mg/kg
LC50 Inhalation - rat - 4 h - 48000 ppm
Dermal: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: Eyes - rabbit Result: Mild eye irritation
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
Carcinogenicity - rat - Inhalation:
Tumorigenic:Carcinogenic by RTECS criteria. Tumorigenic Effects: Testicular tumors.
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Suspected human reproductive toxicant
Suspected of damaging fertility.
Specific target organ toxicity - single exposure: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure: Ingestion - May cause damage to organs through prolonged or repeated exposure. - Nervous system
Aspiration hazard: May be fatal if swallowed and enters airways.
Additional Information: RTECS: MN9275000

Prolonged or repeated contact with skin may cause:, defatting, Dermatitis, Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Effects due to ingestion may include:, Gastrointestinal discomfort, Central nervous system depression, Lung irritation, chest pain, pulmonary edema, giddiness, slowed reaction time, slurred speech, Headache, Dizziness, Drowsiness, Unconsciousness
Testes. - Irregularities - Based on Human Evidence

Carbon dioxide (124-38-9) [0.0001-2.99%]
Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available
Aspiration hazard: no data available
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May cause severe frostbite. May be harmful if absorbed through skin. May cause skin
Eyes May cause eye irritation. Aggravated Acts as a simple asphyxiant by displacing air. , Medical Condition
Signs and Symptoms of Exposure: Nausea, Dizziness, Headache, Low to medium concentrations of carbon dioxide can:, affect regulation of blood circulation, affect the acidity of body fluids, respiratory difficulties, At high concentrations:, Breathing difficulties, Increased pulse rate, change in body acidity, Very high concentrations can cause:, Unconsciousness, death
Synergistic effects: no data available
Additional Information: RTECS: FF6400000

Nitrogen (7727-37-9) [0.0001-5%]
Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available
Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: May be harmful., Nausea, Headache, Vomiting
Synergistic effects: no data available
Additional Information: RTECS: QW9700000

Propane (74-98-6) [0.0001-2%]
Acute toxicity: no data available
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Specific target organ toxicity - single exposure: no data available
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: no data available
Additional Information: RTECS: TX2275000
Dizziness, Drowsiness, Unconsciousness

Methane (74-82-8) [73.99-99.9%]
Acute toxicity:
Oral LD50 no data available
Inhalation LC50
Dermal LD50
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available
Aspiration hazard: no data available
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Synergistic effects: no data available
Additional Information: RTECS: PA1490000

12 ECOLOGICAL INFORMATION

Butane (106-97-8) [0.0001-1%]
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

Isobutane (75-28-5) [0.0001-1%]
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

Isopentane (78-78-4) [0.0001-1%]
Toxicity:
Remarks: The preceding data, or interpretation of data, was determined using
Quantitative Structure Activity Relationship (QSAR) modeling.
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 2.3 mg/l - 48 h.
other aquatic invertebrates
Persistence and degradability: Biodegradability Result: 71.43 % - Readily biodegradable.
Bioaccumulative potential: Does not significantly accumulate in organisms.
Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

Pentane (109-66-0) [0.0001-1%]
Toxicity:
Toxicity to daphnia EC50 - Daphnia magna (Water flea) - 9.74 mg/l - 48 h.
and other aquatic invertebrates
Persistence and degradability: Biodegradability Biotic/Aerobic Result: 70 % - Readily biodegradable.
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: Toxic to aquatic life.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Avoid release to the environment. Do not empty into drains.

Heptane (142-82-5) [0.0001-1%]
Information on ecological effects
Toxicity:
Toxicity to fish LC50 - Carassius auratus (goldfish) - 4 mg/l - 24.0 h.
LC50 - Tilapia mossambica - 375 mg/l - 96.0 h
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h.
other aquatic invertebrates
Persistence and degradability: Ratio BOD/ThBOD 3.5 %
Bioaccumulative potential: Indication of bioaccumulation.

Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.
Do not empty into drains. Avoid release to the environment.

Octane (111-65-9) [0.0001-1%]
Toxicity:
Toxicity to fish mortality LC50 - Oryzias latipes - 0.42 mg/l - 96.0 h.
Toxicity to daphnia Immobilization EC50 - Daphnia magna (Water flea) - 0.38 mg/l - 48 h.
and other aquatic invertebrates
Toxicity to algae Growth inhibition NOEC - Pseudokirchneriella subcapitata - 5.8 mg/l - 72 h.
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

Hexane (110-54-3) [0.0001-0.0999%]
Toxicity:
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 2.5 mg/l - 96.0 h.
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 3,878.00 mg/l - 48 h.
other aquatic invertebrates
Toxicity to algae EC50 - Chlorella vulgaris (Fresh water algae) - 12,840.00 mg/l - 3 h.
EC50 - SKELETOMA - 0.30 mg/l - 8 h
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

Carbon dioxide (124-38-9) [0.0001-2.99%]
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

Nitrogen (7727-37-9) [0.0001-5%]
Information on ecological effects
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

Propane (74-98-6) [0.0001-2%]
Toxicity: no data available

Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: no data available

Methane (74-82-8) [73.99-99.9%]
Toxicity: no data available
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations. Do not attempt to dispose of waste or unused quantities in returnable cylinders. Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to NorLab.

14 TRANSPORT INFORMATION

DOT Class:
Flammable Gas (2.1) #2.1

Packing Group:

Proper Shipping Name US:
UN 1954, Compressed Gas, Flammable, N.O.S., (Ethane, Methane), 2.1

Proper Shipping Name US:
UN 1954, Compressed Gas, Flammable, N.O.S., (Ethane, Methane), 2.1

15 REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

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*Butane (106978 0.0001-1%)MASS, NJHS, OSHAWAC, PA, TSCA, TXAIR

*Isobutane (75285 0.0001-1%), MASS, PA, TSCA

*Isopentane (78784 0.0001-1%), MASS, PA, TSCA

*Pentane (109660 0.0001-1%), MASS, NJHS, OSHAWAC, PA, TSCA, TXAIR

*Heptane (142825 0.0001-1%), MASS, OSHAWAC, PA, TSCA, TXAIR

*Octane (111659 0.0001-1%), MASS, OSHAWAC, PA, TSCA, TXAIR

*Nonane (111842 0.0001-1%), MASS, OSHAWAC, PA, TSCA, TXAIR

*Carbon dioxide (124389 0.0001-2.99%), MASS, OSHAWAC, PA, TSCA, TXAIR

*Nitrogen (7727379 0.0001-5%), MASS, PA, TSCA

*Propane (74986 0.0001-2%), MASS, NJHS, OSHAWAC, PA, TSCA, TXAIR

*Ethane (74840 0.0001-8%), MASS, NJHS, PA, TSCA, TXAIR

*Methane (74828 73.99-99.9%), MASS, NJHS, PA, TSCA, TXAIR

Regulatory CODE Descriptions

RQ = Reportable Quantity
MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
PA = PA Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

CERCLA = superfund clean up substance
HAP = Hazardous Air Pollutants
OSHAWAC = OSHA Workplace Air Contaminants
SARA313 = SARA 313 Title III Toxic Chemicals
TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
TXHWL = TX Hazardous Waste List

16 OTHER INFORMATION

Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).