

Section 1: Product and Company Identification

Absolute Accuracy
4591 S Wayside Dr
Houston, TX 77087
(832) 571-2387

Product Code: 2886

Synonyms: n/a
Recommended Use: calibration gas
Usage Restrictions: industrial calibration gas only

Section 2: Hazards Identification



Danger

Hazard Classification:

Aspiration Hazard (Category 1)
Flammable (Category 1)
Gases Under Pressure
Reproductive Toxicity (Category 2)
Specific target organ toxicity (Repeated Exposure) (Category 2)
Specific target organ toxicity (Single Exposure) (Category 3)

Hazard Statements:

Contains gas under pressure; may explode if heated
Extremely flammable gas
May be fatal if swallowed and enters airways
May cause damage to organs through prolonged or repeated exposure
May cause respiratory irritation;
Suspected of damaging fertility or the unborn child
Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention:

Do not breathe dust/fume/gas/mist/ vapors/spray..
[In case of inadequate ventilation] wear respiratory protection.
Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection and face protection.
Obtain special instructions before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response:

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Immediately call a poison center or doctor.
 Eliminate all ignition sources if safe to do so.
 Do NOT induce vomiting.
 If swallowed: Rinse mouth. Do NOT induce vomiting.
 If exposed or concerned: Get medical advice/attention.
 If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
 Protect from sunlight.
 Store locked up.

Disposal:

Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

		CAS #	Concentration	
Hexane		110-54-3	% 0.1	
iso-Pentane		78-78-4	% 0.1	
Pentadecane		629-62-9	% 0.1	
Nitrogen		7727-37-9	% 0.2	
Butane		106-97-8	% 0.3	
Isobutylene		115-11-7	% 0.3	
Hexane	HEXANE	115-11-7	Hydrocarbons, Aliphatic, Saturated	N-HEXANE; 1-HEXANE; HEXYL HYDRIDE; 1-HEXANE; NORMAL HEXANE; SKELLYSOLVE
Carbon Dioxide		124-38-9	% 0.586	B; UN 1208; CARBOYL HYDRIDE; C6H14
Propane		74-98-6	% 1	
Ethane	ISOPENTANE	74-84-0	Hydrocarbons, Aliphatic, Saturated	2-METHYLBUTANE;
Methane		74-82-8	balance	ETHYLDIMETHYLMETHANE; ISOAMYLHYDRIDE; BUTANE,2-METHYL-; 1,1,2-TRIMETHYLETHANE; C5H12
Pentadecane	N-Pentadecane		Hydrocarbons, Aliphatic, Saturated	Pentadecane; N-PENTADECANE
Nitrogen	NITROGEN, COMPRESSED GAS		Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2
Butane	BUTANE		Hydrocarbons, Aliphatic, Saturated	N-BUTANE; LIQUIFIED PETROLEUM GAS; NORMAL BUTANE; BUTYL HYDRIDE; LPG; UN 1011; C4H10
Isobutylene	ISOBUTYLENE		Hydrocarbons, Aliphatic, Unsaturated	2-METHYLPROPENE; ISOBUTENE; LIQUIFIED PETROLEUM GAS; 2-METHYL-1-PROPENE; L.P.G.; GAMMA-BUTYLENE; ASYM-DIMETHYL ETHYLENE; UN 1055
Carbon Dioxide	CARBON DIOXIDE, GAS		Inorganic gases	CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2
Propane	PROPANE		Hydrocarbons, Aliphatic, Saturated	N-PROPANE; DIMETHYLMETHANE; PROPYL HYDRIDE; R-290; PROPYLHYDRIDE; LIQUEFIED PETROLEUM GAS; LPG; >96% NATURAL GRADE; >99.9% PURE GRADE; UN 1978; C3H8
Ethane	ETHANE		Hydrocarbons, Aliphatic, Saturated	BIMETHYL; ETHANE, COMPRESSED; METHYLMETHANE; DIMETHYL; ETHYL HYDRIDE; UN 1035; C2H6
Methane	METHANE, COMPRESSED GAS		Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Hexane	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Aspiration hazard. DO NOT induce vomiting. If vomiting occurs, keep head lower than hips to help prevent aspiration. Get immediate medical attention. Give artificial respiration if not breathing.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Long-term exposure to n-hexane can cause damage to the peripheral nervous system.
iso-Pentane	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Pentadecane	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Butane	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Not likely route of exposure.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Isobutylene	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Carbon Dioxide	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Do not induce vomiting.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Propane	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Ethane	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Hexane	Regular dry chemical, carbon dioxide, water, regular foam Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide and toxic and irritating fumes	<ul style="list-style-type: none"> Any appropriate escape-type, self-contained breathing apparatus. Protective material types: rubber
iso-Pentane	Foam, dry chemical, carbon dioxide. Water may be ineffective.	Oxides of carbon	<ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece.
Pentadecane	Regular dry chemical, carbon dioxide, water, regular foam Large fires: Use regular foam or flood with fine water spray.	Irritating, toxic gases	<ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece.
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	<ul style="list-style-type: none"> Respiratory protection may be needed for frequent or heavy exposure.
Butane	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide, water and toxic and irritating fumes.	<ul style="list-style-type: none"> Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Isobutylene	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide, water and toxic and irritating fumes	<ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece.
Carbon Dioxide	Non-flammable	Non-flammable	<ul style="list-style-type: none"> Any appropriate escape-type, self-contained breathing apparatus. Non-flammable
Propane	Regular dry chemical, high expansion foam Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide, water and toxic and irritating fumes	<ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece.
Ethane	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Toxic gases	<ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece.
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	<ul style="list-style-type: none"> Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Hexane	Keep unnecessary people away, isolate hazard area and deny entry.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray.
iso-Pentane	Keep unnecessary people away, isolate hazard area and deny entry.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Pentadecane	Keep unnecessary people away, isolate hazard area and deny entry.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.

	Personal Precautions	Environmental Precautions	Methods for Containment
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.
Butane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Isobutylene	Keep unnecessary people away, isolate hazard area and deny entry. Do not touch spilled material. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Carbon Dioxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.	Stop leak if possible without personal risk.
Propane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Ethane	Keep unnecessary people away, isolate hazard area and deny entry. Do not touch spilled material. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.

	Methods for Cleanup	Other Information
Hexane	Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition.	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
iso-Pentane	Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal.	None
Pentadecane	Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal.	None
Nitrogen	N/A	N/A
Butane	Stop leak, evacuate area. Use protective equipment. Contact emergency personnel.	None
Isobutylene	Evacuate and ventilate area.	None
Carbon Dioxide	Stop leak, evacuate, remove source of ignition.	None
Propane	Contact emergency personnel	None
Ethane	Contact emergency personnel immediately.	Not available
Methane	Not available	Not available

Section 7: Handling and Storage

	Handling	Storage
Hexane	Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125F (52C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier

	Handling	Storage
iso-Pentane	Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125F (52C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier
Pentadecane	Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125F (52C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier.
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Butane	Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110.
Isobutylene	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Carbon Dioxide	Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards
Propane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Ethane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Hexane	N-HEXANE: 500 ppm (1800 mg/m ³) OSHA TWA 50 ppm (180 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 50 ppm ACGIH TWA (skin) 50 ppm (180 mg/m ³) NIOSH recommended TWA 10 hour(s)
iso-Pentane	ISOPENTANE: 600 ppm ACGIH TWA
Pentadecane	Not established

	Exposure Guidelines
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)
Butane	N-BUTANE: 800 ppm (1900 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 800 ppm (1900 mg/m ³) NIOSH recommended TWA 10 hour(s) LIQUIFIED PETROLEUM GAS (LPG): 1000 ppm (1800 mg/m ³) OSHA TWA 1000 ppm (1800 mg/m ³) NIOSH recommended TWA 10 hour(s) ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Isobutylene	TLV-TWA: 250 ppm Carcinogenicity (ACGIH)
Carbon Dioxide	CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m ³) OSHA TWA 10000 ppm (18000 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m ³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m ³) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m ³) NIOSH recommended STEL
Propane	PROPANE: 1000 ppm (1800 mg/m ³) OSHA TWA 1000 ppm (1800 mg/m ³) NIOSH recommended TWA 10 hour(s) LIQUIFIED PETROLEUM GAS (LPG): 1000 ppm (1800 mg/m ³) OSHA TWA 1000 ppm ACGIH TWA 1000 ppm (1800 mg/m ³) NIOSH recommended TWA 10 hour(s) ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Ethane	TLV-TWA: 1000ppm (Aliphatic hydrocarbon gases: Alkane C1 - C4) (ACGIH)
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE: No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Hexane	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any appropriate escape-type, self-contained breathing apparatus.
iso-Pentane	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Pentadecane	Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.
Butane	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Isobutylene	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any self-contained breathing apparatus with a full facepiece.

	Eye Protection	Skin Protection	Respiratory Protection
Carbon Dioxide	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any appropriate escape-type, self-contained breathing apparatus.
Propane	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any self-contained breathing apparatus with a full facepiece.
Ethane	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any self-contained breathing apparatus with a full facepiece.
Methane	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Hexane	Liquid	Clear	Colorless	N/A	Liquid	Faint odor, gasoline odor	N/A
iso-Pentane	Liquid	Colorless	Colorless	N/A	Liquid	Gasoline like	N/A
Pentadecane	Liquid	Clear	Colorless	N/A	Liquid	Gasoline Odor	N/A
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless
Butane	Gas	Colorless	Colorless	N/A	Gas	Faint petroleum-like odor	N/A
Isobutylene	Gas	Clear	Colorless	N/A	Liquefied gas	Petroleum odor	N/A
Carbon Dioxide	Gas	Colorless	Colorless	N/A	Gas	Odorless	Acid taste
Propane	Gas	Clear	Colorless	N/A	Gas	Gasoline odor	N/A
Ethane	Gas	Colorless	Colorless	N/A	Gas	Sweet odor	N/A
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Hexane	-9.4 F (-23 C) (CC); -7 F (-21.7 C) (CC)	IB	139315.68 (log = 5.148) (estimated from water solubility)	437 F (225 C)	0.075	0.011

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
iso-Pentane	<-60 F (<-51 C) (CC)	IA	Not available	788 F (420 C)	0.076	0.014
Pentadecane	122C	Not available	Not available	220C		
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable
Butane	-76 F (-60 C) (CC)	Not available	630.96 (log = 2.80) (estimated from water solubility)	549 F (287 C)	0.085	0.019
Isobutylene	-105 F (-76 C)	Not available	Not available	869 F (465 C)	0.096	0.018
Carbon Dioxide	Not flammable	Not available	N/A	Nonflammable	Nonflammable	Nonflammable
Propane	-157 F (-105 C)	Not available	Not available	842 F (450 C)	0.095	0.021
Ethane	-211 F (-135 C) (CC)	Not available	912.01 (log = 2.97) (estimated from water solubility)	882 F (472 C)	0.125	0.03
Methane	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%	5%

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Hexane	156 F (69 C)	-139 F (-95 C)	124 mmHg @ 20 C	3 (Air=1)	0.6603	0.014% @ 20 C	Neutral	64-244 ppm	8.9 (n-butyl acetate = 1)	0.32 cP @ 25 C
iso-Pentane	82 F (28 C)	-256 F (-160 C)	Not available	2.5 (Air=1)	0.6201	Insoluble	Not available	Not available	Not available	Not available
Pentadecane	270 C	9 C	3.4X10 ⁻³ mm Hg @ 25 deg C	0.7685 @ 20 DEG C	0.7685 at 68 F	7.6X10 ⁻⁵ mg/l	Not available	Not available	Not available	Not available
Nitrogen	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C
Butane	30 F (-1 C)	-216 F (-138 C)	1557 mmHg @ 20 C	2.1 (Air=1)	0.5788 @ 0 C	0.15	Not applicable	6.16 ppm	Not applicable for gas. Liquefied n-butane will evaporate rapidly at room temperature	Not available
Isobutylene	19 F (-7 C)	-220 F (-140 C)	3278 mmHg @ 37.7 C	1.9 (Air=1)	0.5879 @ 25 C	Almost insoluble	Not applicable	20 ppm (46 mg/m ³) (unspecified)	Not applicable	Not available

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Carbon Dioxide	Not available	-71 F (-57 C) @ 4000 mmHg	43700 mmHg @ 21 C	1.5 (Air=1)	1.522 @ 21 C	Soluble	3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid)	Not available	Not applicable	0.01657 cP @ 0 C
Propane	-40 F (-40 C)	-310 F (-190 C)	6398 mmHg @ 21.1 C	1.55 (Air=1)	0.5853 @ -45 C	Very slightly soluble	Not applicable	5000-20000 ppm	Not applicable	Not available
Ethane	-128 F (-89 C)	-297 F (-183 C)	28842 mmHg @ 21 C	1.05 (Air=1)	Not applicable	4.7% @ 20 C	Not applicable	899 ppm	Not applicable for gas. Refrigerated liquefied ethane will evaporate rapidly at room temperature	0.00852 cP @ 0 C
Methane	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Hexane	86.18	C-H3-(C-H2)4-C-H3	Not available	Not available	Not available	675 g/l VOC (w/v)	Soluble: Alcohol, ether, chloroform, acetone, organic solvents
iso-Pentane	72.15	C-H3-C-H2-C-H-(C-H3)2	Not available	Not available	100%	Not available	Ether, alcohol, hydrocarbons, oils
Pentadecane	212.421 g/mol	C15H32	0.77 g/cm ³ @ 20C	Not available	Not available	Not available	
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia
Butane	58.12	C-H3-(C-H2)2-C-H3	Not available	Not available	100%	Not applicable	Soluble: Alcohol, ether, chloroform
Isobutylene	56.12	C4-H8	Not available	Not available	100%	Not applicable	Soluble: Organic solvents, alcohol, ether, sulfuric acid
Carbon Dioxide	44.01	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble: Alcohol, acetone, hydrocarbons, organic solvents
Propane	44.11	C-H3-C-H2-C-H3	0.116	Not available	Not available	Not applicable	Soluble: Absolute alcohol, ether, chloroform, benzene, turpentine
Ethane	30.07	C-H3-C-H3	1.242 g/L @ 25 C	Not available	Not available	1	Soluble: Benzene, ethanol
Methane	16.04	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble: Alcohol, ether, benzene, organic solvents

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Hexane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, combustible materials, chlorine dioxide, fluorine, nitrogen dioxide, potassium chlorate, chlorine, chlorosulfuric acid
iso-Pentane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials
Pentadecane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials
Butane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogen compounds
Isobutylene	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials
Carbon Dioxide	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases
Propane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, combustible materials, halogen compounds,
Ethane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens,
Methane	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Halogens, oxidizing materials, combustible materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Hexane	Oxides of carbon	Will not polymerize.
iso-Pentane	Oxides of carbon	Will not polymerize.
Pentadecane	Oxides of carbon	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.
Butane	Oxides of carbon.	Will not polymerize.
Isobutylene	Oxides of carbon	Can polymerize in the presence of catalysts.
Carbon Dioxide	Carbon monoxide	Will not polymerize.
Propane	Oxides of carbon	Will not polymerize.
Ethane	Oxides of carbon	Will not polymerize.
Methane	Oxides of carbon	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Hexane	>5 gm/kg oral-rat LD50	>2 gm/kg skin-rabbit LD50	Irritation, nausea, irregular heartbeat, headache, drowsiness, dizziness, mood swings, loss of coordination, lung congestion, nerve damage, brain damage, unconsciousness
iso-Pentane	Not available	Not available	Irritation, difficulty breathing, symptoms of drunkenness
Pentadecane	Mouse 3493 mg/kg	Not available	Irritation (possibly severe), sore throat, headache, drowsiness, symptoms of drunkenness, dizziness, depression of the central nervous system
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma
Butane	LC(50): 658 mg/l (270,000 ppm) butane (4 hour-rat)	Not established	Irritation, nausea, vomiting, headache, drowsiness, symptoms of drunkenness, tingling sensation, suffocation, convulsions, coma, can displace oxygen at high concentrations
Isobutylene	LC50 (rat, inhalation) = 620 g/m 3 /4 hours LC50 (mouse, inhalation) = 415 g/m 3 /2 hours	Not available	Irritation, nausea, vomiting, headache, symptoms of drunkenness, disorientation, tingling sensation, suffocation, convulsions, coma
Carbon Dioxide	Not established	Not established	Ringling in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma

	Oral LD50	Dermal LD50	Inhalation
Propane	LC50 Inhalation Gas. Rat >800000 ppm 15 minutes	Not available	Central nervous system depression, difficulty breathing, nausea, vomiting, irregular heartbeat, headache, symptoms of drunkenness, disorientation, suffocation, convulsions, coma
Ethane	Not available	Not available	Irritation, nausea, vomiting, irregular heartbeat, headache, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma

	Eye Irritation	Skin Irritation	Sensitization
Hexane	Mild irritation	Irritation	Reproductive toxicity, Category 2; H361f: Suspected of damaging fertility. Aspiration hazard, Category 1; H304: May be fatal if swallowed and enters airways. Specific Target Organ Toxicity (repeated exposure), Category 2; H373: May cause damage to organs through prolonged or repeated exposure. Skin irritation, Category 2; H315: Causes skin irritation. Specific Target Organ Toxicity (single exposure), Category 3; H336: May cause drowsiness or dizziness. Hazardous to the aquatic environment, Chronic Category 2; H411: Toxic to aquatic life with long lasting effects.
iso-Pentane	Irritation	Irritation	Aspiration hazard, Category 1; H304: May be fatal if swallowed and enters airways. Specific Target Organ Toxicity (single exposure), Category 3; H336: May cause drowsiness or dizziness. Hazardous to the aquatic environment, Chronic Category 2; H411: Toxic to aquatic life with long lasting effects.
Pentadecane	Irritation (possibly severe), tearing	Irritation (possibly severe), itching	Aspiration hazard, Category 1; H304: May be fatal if swallowed and enters airways.
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing
Butane	Frostbite, blurred vision	Blisters, frostbite	Central nervous system depression, difficulty breathing
Isobutylene	Irritation, frostbite, blurred vision	Liquid: burns, frostbite	Central nervous system depression, difficulty breathing
Carbon Dioxide	Irritation, frostbite, blurred vision	Liquid: blisters, frostbite	Difficulty breathing
Propane	Liquid: frostbite, blurred vision	Liquid: blisters, frostbite	No health hazards classified.
Ethane	Frostbite	Frostbite	Difficulty breathing
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Hexane	Not listed.	Available.	Available.	No data
iso-Pentane	Not available	Not available	Not available	No data
Pentadecane	Not available	Not available	Not available	No data
Nitrogen	Not hazardous	Not available	Not available	No data

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Butane	None	Not established	Not established	No data
Isobutylene	Not listed.	Not established	Not established	No data
Carbon Dioxide	Not available	Not established	Available.	No data
Propane	Not available	Not available	Not available	No data
Ethane	Not Listed.	Not available	Not available	No data
Methane	Not available	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Hexane	Fish toxicity: 2500 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas) Invertebrate toxicity: Not available Algal toxicity: 75 ug/L 28 hour(s) (Population Growth) Green algae (Chlamydomonas sp) Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
iso-Pentane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
Pentadecane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
Nitrogen	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
Butane	Fish toxicity: Not available Invertebrate toxicity:	Not available	Not available	Not available

	Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Expected to exist entirely in the vapor phase in ambient air.			
Isobutylene	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not expected Phyto toxicity: Not expected Other toxicity: Not available	Not available	Not available	Dissipates rapidly.
Carbonyl Dioxide	Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (<i>Salmo trutta</i>) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil
Propane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
Ethane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil or the sediment at a slow rate.
Methane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.

Section 13: Disposal Considerations

Hexane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
iso-Pentane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

Pentadecane	Dispose in accordance with federal and local regulations.
Nitrogen	Dispose in accordance with all applicable regulations.
Butane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Isobutylene	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Carbon Dioxide	Dispose in accordance with all applicable regulations.
Propane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Ethane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Methane	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, flammable, n.o.s. (Methane, Ethane)
UN Number	UN1954
Hazard Class	2.1
Hazard Information	FLAMMABLE GAS

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
H e x a n e	Hexanes	UN1208	3	II	3	5 kg or L	N/A	N/A
i s o - P e n t a n e	Pentanes (ISOPENTANE)	UN1265	3	I	3	N/A	N/A	N/A
P e n t a d e c a n e	Not regulated	Not available	Not available	Not available	Not available	Not available	N/A	N/A

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A
Butane	Butane	UN1011	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Isobutylene	ISOBUTYLENE see also PETROLEUM GASES, LIQUEFIED	UN1055	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable	2.2	75 kg or L	150kg	None
Propane	Propane	UN1978	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Ethane	Ethane	UN1035	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Hexane	Hexanes	UN1208	3	II
iso-Pentane	Pentanes	UN1265	3	I
Pentadecane	Not regulated	Not available	Not available	Not available
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

n				
Butane	Butane	UN1011	2.1	Not applicable
Isobutylene	Isobutylene	UN1055	2.1	Not applicable
Carbon Dioxide	Carbon dioxide	UN1013	2.2	Not applicable
Propane	Propane	UN1978	2.1	Not applicable
Ethane	Ethane	UN1035	2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Hexane	5000 LBS RQ	Not regulated.	Not regulated.
iso-Pentane	Not regulated.	Not regulated.	Not regulated.
Pentadecane	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.
Butane	Not regulated.	Not regulated.	Not regulated.
Isobutylene	Not regulated.	Not regulated.	Not regulated.
Carbon Dioxide	Not regulated.	Not regulated.	Not regulated.
Propane	Not regulated.	Not regulated.	Not regulated.
Ethane	Not regulated.	Not regulated.	Not regulated.
Methane	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Hexane	Yes	Yes	Yes	No	No
iso-Pentane	Yes	No	Yes	No	No
Pentadecane	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Yes	No	No	No	Yes
Butane	Yes	No	Yes	No	Yes
Isobutylene	Yes	No	Yes	No	Yes
Carbon Dioxide	Yes	No	No	No	Yes

Propane	Yes	No	Yes	No	Yes
Ethane	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes

SARA 372.65

Hexane	N-HEXANE
iso-Pentane	Not regulated.
Pentadecane	Not regulated.
Nitrogen	Not regulated.
Butane	Not regulated.
Isobutylene	Not regulated.
Carbon Dioxide	Not regulated.
Propane	Not regulated.
Ethane	Not regulated.
Methane	Not regulated.

OSHA Process Safety

Hexane	Not regulated.
iso-Pentane	Not regulated.
Pentadecane	Not regulated.
Nitrogen	Not regulated.
Butane	Not regulated.
Isobutylene	Not regulated.
Carbon Dioxide	Not regulated.
Propane	Not regulated.
Ethane	Not regulated.
Methane	Not regulated.

State Regulations

	CA Proposition 65
Hexane	WARNING: This product can expose you to chemicals including Hexane which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov .
iso-Pentane	Not regulated.
Pentadecane	Not regulated.
Nitrogen	Not regulated.
Butane	Not regulated.
Isobutylene	Not regulated.
Carbon Dioxide	Not regulated.
Propane	Not regulated.
Ethane	Not regulated.
Methane	Not regulated.

Canadian Regulations

	WHMIS Classification
Hexane	B2, D2A, D2B
iso-Pentane	B2
Pentadecane	B
Nitrogen	A
Butane	A,B1
Isobutylene	A,B1
Carbon Dioxide	A
Propane	A, B1.
Ethane	A, B1.
Methane	A, B1

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDL)
Hexane	Listed on inventory.	Not listed.	Listed on DSL.
iso-Pent	Listed on inventory.	Not listed.	Listed on inventory.

ane			
Pentadecane	Listed on inventory.	Not listed.	Listed.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.
Butane	Listed on inventory.	Not listed.	Listed on inventory.
Isobutylene	Listed on inventory.	Not listed.	Listed on inventory.
Carbon Dioxide	Listed on inventory.	Not listed.	Listed on inventory.
Propane	Listed on inventory.	Not listed.	Listed on inventory.
Ethane	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Hexane	HEALTH=2 FIRE=3 REACTIVITY=0
iso-Pentane	HEALTH=2 FIRE=4 REACTIVITY=0
Pentadecane	HEALTH=1 FIRE=1 REACTIVITY=0
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA
Butane	HEALTH=1 FIRE=4 REACTIVITY=0
Isobutylene	HEALTH=1 FIRE=4 REACTIVITY=0
Carbon Dioxide	HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA
Propane	HEALTH=2 FIRE=4 REACTIVITY=0
Ethane	HEALTH=3 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard