Safety Data Sheet

4 Component Mix, Nitrogen Balance

In Case of Emergency: Chemtrec 800-424-9300

Section 1: Product and Company Identification

Gas and Supply
125 Thruway Park
Broussard, LA 70518
877-441-7311
Fax: 337-839-8235
www.gasandsupply.com

Part Number: GSPC4NRLP5GC
Synonyms:
Recommended Use: Synthetic/Analytical Chemistry
Usage Restrictions:

Section 2: Hazards Identification

Danger

Hazard Classification:

Flammable (Category 1)
Gases Under Pressure
Specific target organ toxicity (Single Exposure) (Category 3)

Hazard Statements:

Contains gas under pressure; may explode if heated
Extremely flammable gas
May cause respiratory irritation;

Precautionary Statements

Prevention:
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use only outdoors or in a well-ventilated area.
Avoid breathing dust/fume/gas/mist/ vapors/spray.
[In case of inadequate ventilation] wear respiratory protection.

Response:
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Eliminate all ignition sources if safe to do so.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Call a poison center or doctor if you feel unwell.

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

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

Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Ethylene	74-85-1	50%
Propylene	115-07-1	15%
Isobutylene	115-11-7	10%
Nitrogen	7727-37-9	Balance

	Chemical Substance	Chemical Family	Trade Names
Ethylene	Ethylene	Hydrocarbons, Aliphatic, Unsaturated	ACETENE; ETHENE; ETHYLENE, COMPRESSED GAS; OLEFIANT GAS; BICARBURETTED HYDROGEN; UN 1962; C2H4
Propylene	PROPYLENE	Hydrocarbons, Aliphatic, Unsaturated	PROPENE; METHYLETHENE; METHYLETHYLENE; 1-PROPYLENE; 1-PROPENE; UN 1077; C3H6
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
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Ethylene	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. Seek immediate medical attention. Check for frostbite. Thaw frostbite slowly with lukewarm water. Avoid mouth-to-mouth contact by using a mouth shield or guard to perform artificial respiration.	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
Propylene	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.
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.
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.

Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Ethylene	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide and toxic and irritating fumes	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Any self-contained breathing apparatus with a full facepiece.
Propylene	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Toxic, irritating gases	▪ Any self-contained breathing apparatus with a full facepiece. ▪ Any self-contained breathing apparatus with a full facepiece.
Isobutylene	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide, water and toxic and irritating fumes	▪ 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	▪ Respiratory protection may be needed for frequent or heavy exposure.

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Ethylene	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.
Propylene	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.
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.
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.

	Methods for Cleanup	Other Information
Ethylene	Avoid ignition sources. Evacuate area, contact emergency personnel. Use fine water spray.	None
Propylene	Evacuate area. Contact emergency personnel	None
Isobutylene	Evacuate and ventilate area.	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Ethylene	Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Avoid heat, flames, sparks and other sources of ignition. Grounding and bonding required.
Propylene	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Store outside or in a detached building. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances. Avoid heat, flames, sparks and other sources of ignition.
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.
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.

Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Ethylene	TLV-TWA: 200ppm Carcinogenicity Designation A4 (ACGIH)
Propylene	PROPYLENE: 500 ppm ACGIH TWA
Isobutylene	TLV-TWA: 250 ppm Carcinogenicity (ACGIH)
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems or with adequate ventilation.

	Eye Protection	Skin Protection	Respiratory Protection
Ethylene	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.
Propylene	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.
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.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required.	Respiratory protection may be needed for frequent or heavy exposure.

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
Ethylene	Gas	Colorless	Colorless	N/A	Compressed gas	Sweet odor	Sweet taste
Propylene	Gas	Clear	Colorless	N/A	Gas	Faint gasoline-like odour	N/A
Isobutylene	Gas	Clear	Colorless	N/A	Liquefied gas	Petroleum odor	N/A
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Ethylene	Approximately -212.8 F (-136 C) (CC); extremely flammable gas	Not available	281.84 (log = 2.45) (estimated from water solubility)	842 F (450 C)	0.36	0.027
Propylene	-162 F (-108 C)	Not available	223.87 (log = 2.35) (estimated from water solubility)	851 F (455 C)	0.111	0.02
Isobutylene	-105 F (-76 C)	Not available	Not available	869 F (465 C)	0.096	0.018

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Nitrogen	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Ethylene	-155 F (-104 C)	-272 F (-169 C)	760 mmHg @ -104 C	0.978 @ 0 C; 0.969 @ 21.1 C (air = 1)	Not applicable	0.226	Not applicable	Wide range of reported values: 17 to 959 ppm. Acceptable values are: 270 ppm (310 mg/m3) (detection); 418 ppm (480 mg/m3) (recognition)	Not applicable	LIQUEFIED GAS: 0.16 mPa.s (0.16 centipoise) @ -100 C (18); 0.07 mPa.s (0.07 centipoise) @ 0 C
Propylene	-53 F (-47 C)	-301 F (-185 C)	7828 mmHg @ 21.1 C	1.5 (Air=1)	Not applicable	0.45	Not applicable	Not available	Not applicable	0.140 cP @ -40 C
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/m3) (unspecified)	Not applicable	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

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Ethylene	28.05	C-H2-C-H2	1.261 g/L @ 0 C	Not available	100%	1	Soluble: Alcohol, ether, acetone, benzene
Propylene	42.08	C-H3-C-H-C-H2	1.7855 g/L	Not available	100%	Not applicable	Soluble: Alcohol, ether, acetic acid
Isobutylene	56.12	C4-H8	Not available	Not available	100%	Not applicable	Soluble: Organic solvents, alcohol, ether, sulfuric acid
Nitrogen	28.0134	N2	1.2506 g/L	Not available	100%	1	Soluble: Liquid ammonia

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Ethylene	May polymerize. Avoid storage and use above room temperature.	May polymerize. Avoid storage and use above room temperature.	Acids, metal salts, halogens, halo carbons, oxidizing materials, metals, peroxides, chlorine, aluminum chloride, nitrogen dioxide or ozone, copper, 5A molecular sieves
Propylene	May polymerize. May react on contact with air, heat, light or water.	May polymerize. May react on contact with air, heat, light or water.	Oxidizing materials, halo carbons, halogens, acids, water, nitrogen oxides
Isobutylene	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

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Ethylene	Carbon monoxide, carbon dioxide, hydrocarbons	Polymerizes with evolution of heat. Store in a cool, dry place.
Propylene	Miscellaneous decomposition products	May polymerize. Avoid contact with heat, light, air, water or incompatible materials. Polymerizes with evolution of heat.
Isobutylene	Oxides of carbon	Can polymerize in the presence of catalysts.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Ethylene	LC50 (inhalation, mouse) = 96 pph	Not available	Nausea, vomiting, symptoms of drunkenness, bluish skin color, suffocation, convulsions, coma
Propylene	Not available	Not available	Tearing, nausea, vomiting, symptoms of drunkenness, suffocation, convulsions, coma
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
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Ethylene	Frostbite, blurred vision	Blisters, frostbite	Specific Target Organ Toxicity (single exposure), Category 3; H336: May cause drowsiness or dizziness.
Propylene	Liquid: frostbite, blurred vision	Liquid: blisters, frostbite	No health hazards classified.
Isobutylene	Irritation, frostbite, blurred vision	Liquid: burns, frostbite	Central nervous system depression, difficulty breathing
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Ethylene	IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen	Not available	Not available	No data
Propylene	IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen	Available.	Available.	No data
Isobutylene	Not listed.	Not established	Not established	No data
Nitrogen	Not hazardous	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Ethylene	Fish toxicity: 22000-25000 ug/L 1 day(s) LC100 (Mortality) Orangespotted	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil or the sediment at a slow rate.

	sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Lemon = 0.025-0.05; epinasty Other toxicity: Tomato = 0.04-0.1 ppm/3-48 hours; leaf epinasty.			
Propylene	Fish toxicity: Not available Invertibrate 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.	0.40 (estimated from water solubility)	Leaches through the soil or the sediment at a slow rate.
Isobutylene	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not expected Phyto toxicity: Not expected Other toxicity: Not available	Not available	Not available	Dissipates rapidly.
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Ethylene	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Propylene	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.
Nitrogen	Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed Gas, Flammable, N.O.S. (Ethylene, Nitrogen)
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
Ethylene	Ethylene	UN1962	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Propylene	Propylene	UN1077	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
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Ethylene	Ethylene, compressed	UN1962	2.1	Not applicable
Propylene	Propylene	UN1077	2.1	Not applicable
Isobutylene	Isobutylene	UN1055	2.1	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Ethylene	Not regulated.	Not regulated.	Not regulated.
Propylene	Not regulated.	Not regulated.	Not regulated.
Isobutylene	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Ethylene	Yes	No	Yes	Yes	Yes
Propylene	Yes	No	Yes	No	Yes
Isobutylene	Yes	No	Yes	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Ethylene	ETHYLENE
Propylene	PROPYLENE
Isobutylene	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Ethylene	Not regulated.
Propylene	Not regulated.
Isobutylene	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Ethylene	Not regulated.
Propylene	Not regulated.
Isobutylene	Not regulated.
Nitrogen	Not regulated.

Gas and Supply

Canadian Regulations

	WHMIS Classification
Ethylene	A, B1, D2B
Propylene	A, B1.
Isobutylene	A,B1
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Ethylene	Listed on inventory.	Not listed.	Listed on inventory.
Propylene	Listed on inventory.	Not listed.	Listed on inventory.
Isobutylene	Listed on inventory.	Not listed.	Listed on inventory.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Ethylene	HEALTH=3 FIRE=4 REACTIVITY=2
Propylene	HEALTH=2 FIRE=4 REACTIVITY=1
Isobutylene	HEALTH=1 FIRE=4 REACTIVITY=0
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

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

Disclaimer: The information contained herein is accurate to the best of our knowledge. Gas and Supply makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances.