Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Isobutane**

Other means of identification:
- IsoC4
- IC4
- Isobutane (Polymerization Grade)
- Methylpropane, Iso

SDS Number: H7001.1
Intended Use: Fuel, Blendstock
Uses Advised Against: All others

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Emergency Health and Safety Number:
Chemtrec: 800-424-9300 (24 Hours)

Section 2: Hazards Identification

2.1 Classified Hazards: H220 – Flammable gases – Category 1
H280 – Gases under pressure – Liquefied gas

Other Hazards: May displace oxygen and cause rapid suffocation.

2.2 Label Elements:

Hazard Pictograms:

Signal Word: **DANGER!**

Hazard Statements: Extremely flammable gas. (H220)*

Precautionary Statements: Contains gas under pressure; may explode if heated. (H280)*

Prevention: Keep away from heat/sparks/open flames/hot surfaces and other ignition sources. No smoking. (P210)*

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. (P377)*
Eliminate all ignition sources if safe to do so. (P381)*

Storage: Protect from sunlight. Store in well-ventilated place. (P410 +P403)*

Disposal: Dispose in accordance with all applicable laws and regulations. (P501)*

Supplemental label information: Not applicable.

2.3 Other Hazards: May displace oxygen and cause rapid suffocation.

2.4. Known acute toxicity: Not acutely toxic.

**(Applicable GHS hazard code)*

Section 3: Composition/Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Isobutane	**75-28-5**	**>95%**
n-Butane	**106-97-8**	**<5%**
Propane	**74-98-6**	**<5%**
n-Pentane/Isopentane	**109-66-0/78-78-4**	**<2%**

1 All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: For contact with the liquefied gas, remove contact lenses if present and easy to do, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin Contact: Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Do not rub affected area. Do not remove clothing that adheres due to freezing. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most important symptoms and effects:

Acute: Anesthetic effects at high concentrations

Delayed: None known or anticipated. See Section 11 for information on Toxicological Effects.

Notes to Physician: Epinephrine and sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 1 **Flammability:** 4 **Instability:** 0

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

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the material:

Unusual Fire & Explosion Hazards: Extremely flammable. Contents under pressure. This material can be ignited by heat,

sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazards indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Drains can be plugged and valves made inoperable by the formation of ice if rapid evaporation of large quantities of the liquefied gas occurs. Do not allow run-off from firefighting to enter drains or water courses – may cause explosion hazard in drains and may reignite.

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

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for flammable properties, including Flash point and Upper and Lower Explosive Limits.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Extremely flammable. Release of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down-wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards, handling and storage.

Environmental Precautions: Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely release scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flames – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see Section 8). Extremely flammable. Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29 CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn during hazard.

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

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

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

Section 8: Exposure Controls/Personal Protection

Chemical Name	ACGIH	OSHA	NIOSH
Isobutane	**TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)**	———	**TWA: 800 ppm TWA: 1800 mg/m^3**
n-Butane	**TWA: 800 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)**	———	**TWA: 800 ppm TWA: 1800 mg/m^3**
Propane	**TWA: 1000 ppm as Aliphatic Hydrocarbon Gases: Alkane (C1-C4)**	**TWA: 1000 ppm TWA: 1800 mg/m^3**	**TWA: 1000 ppm TWA: 1800 mg/m^3**

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

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

Skin/Hand Protection: Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

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

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

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

Section 9: Physical and Chemical Properties

Data represent typical values and are not intended to be specifications. N/A = Not Applicable; N/D = Not Determined

Appearance: Colorless liquid under pressure	**Flash Point:** -117 °F / -83 °C
Physical Form: Liquefied Gas	**Test Method:** (estimate)
Odor: Faint petroleum-odor (not odorized)	**Initial Boiling Point/Range:** 11 °F / -12 °C
Odor Threshold: N/D	**Vapor Pressure:** 70-75 psia (Reid VP) @ 100°F / 37.8°C
pH: N/A	**Partition Coefficient (n-octanol/water) (Kow):** N/D
Vapor Density (air=1): 2	**Melting/Freezing Point:** -256 °F / -160 °C
Relative Density: .5037 to .601	**Auto Ignition Temperature:** 860 °F / 460 °C
Upper Explosive Limits (vol % in air): 8.8	**Decomposition Temperature:** N/D

Lower Explosive Limits (vol % in air): 2.0	**Specific Gravity (water=1):** 0.58 @ 60°F (15.6°C)
Evaporation Rate (nBuAc=1): Gas at normal ambient conditions	**Bulk Density:** N/D
Particle Size: N/A	**Viscosity:** N/D
Percent Volatile: 100%	**Solubility in Water:** Negligible
Flammability (solid, gas): Extremely Flammable	

Section 10: Stability and Reactivity

Chemical Stability: Stable under normal ambient and anticipated conditions of use.

Conditions to Avoid: Avoid all possible sources of ignition. Heat will increase pressure in storage tank.

Material to Avoid (Incompatible Materials): Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents. Strong oxidizers may ignite this material.

Hazardous Decomposition Products: Not anticipated under normal conditions of use.

Hazardous Polymerization: Not known to occur.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	**Unlikely to be harmful**	**Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See signs and symptoms below.**	**>20,000 ppm**
Dermal	**Skin absorption is not anticipated**	**Frostbite burn hazard.**	**N/A**
Oral	**Ingestion is not anticipated**		**N/A**

Aspiration Hazard: High concentrations in confined spaces may limit oxygen available for breathing.

Skin Corrosion/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn). Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

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

Skin Sensitization: Skin contact is not anticipated.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

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

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

Carcinogenicity: Not expected to cause cancer.

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

Reproductive Toxicity: Not expected to cause reproductive toxicity.

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

Toxicological Effects of Components

Isobutane:
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of isobutene as high as 9,000 ppm for 28 days
Reproductive Toxicity: No adverse developmental effects were observed in rats exposed to concentrations of isobutane as high as 9000 ppm. Fertility and mating indices may have been affected at 9000 ppm but no effects were observed at 3000 ppm (NOAEL).
n-Butane:
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of butane as high as 9,000 ppm for 28 days.
Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to butane; no observed adverse effect level at 12,000 ppm.
Propane:
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of propane as high as 12,000 ppm for 28 days.
Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to propane; no observed adverse effect level at 12,000 ppm.

Section 12: Ecological Information

Toxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment.

Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process.

Bioaccumulative Potential: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radical with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other Adverse Effects: None anticipated.

Section 13: Disposal Considerations

Disposal Instructions:	Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration.
Local Disposal Regulations:	Dispose of product in accordance with local regulations.
Hazardous Waste Code:	Ignitable waste, D001.
Waste from Residues/Un-used Products:	Dispose of product in accordance with local regulations.
Contaminated Packaging:	Not applicable.

Section 14: Transport Information

U.S. Department of Transportation (DOT)
Shipping Description: UN1969, Isobutane, 2.1, see also UN1075 (Liquefied Petroleum Gas)
Proper Shipping Name: Isobutane
Identification Nos.: UN1969

Hazard Class/Label Code: 2.1
PG: none
Bulk Package/Placard Marking: Flammable gas/1011
Non-Bulk Package Marking: Isobutane, UN1969
Non-Bulk Package Labeling: Flammable gas
Packaging – References: 49 CFR: 173.306 (Exceptions); 173.304 (Non-Bulk); 173.314 & .315 (Bulk)
Hazardous Substance: None
Emergency Response Guide: 115

See also:
Shipping Description: UN1075, Petroleum Gases, Liquefied, 2.1
Proper Shipping Name: Petroleum Gases, Liquefied *or* Liquefied Petroleum Gas
Identification Nos.: UN1075
Hazard Class/Label Code: 2.1
PG: none
Bulk Package/Placard Marking: Flammable gas/1075
Non-Bulk Package Marking: Petroleum Gases, Liquefied, UN1075
Non-Bulk Package Labeling: Flammable gas
Packaging – References: 49 CFR: 173.306 (Exceptions); 173.304 (Non-Bulk); 173.314 & .315 (Bulk)
ERAP Index: 3000
Emergency Response Guide: 115

International Maritime Dangerous Goods (IMDG)
Shipping Description: UN1969, Isobutane, 2.1, see also UN1075 (Liquefied Petroleum Gas)
Non-Bulk Package Marking: Isobutane, UN1969
Labels: Flammable gas
Placards/Marking (Bulk): Flammable gas/1969
Packaging – Non-Bulk: P200
EMS: F-D, S-U

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
N/A

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)
UN/ID #: UN1969, Isobutane, 2.1, see also UN1075 (Liquefied Petroleum Gas)
Proper Shipping Name: Isobutane
Hazard Class/Division: 2.1
Subsidiary risk: None
Non-Bulk Package Marking: Isobutane, UN1969
Labels: Flammable gas
ERG Code: 10L

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	*Forbidden*	*Forbidden*	200
Max. Net. Qty. Per Package:	*Forbidden*	*Forbidden*	150 kg

Section 15: Regulatory Information

OSHA HAZARD COMMUNICATION STANDARD
This material has been evaluated and determined to be a “Hazardous Chemical” as defined in OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA – Section 302 Extremely Hazardous Substances and TPQs (in pounds)
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

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

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

CERCLA/SARA – Section 313 and 40 CFR 372

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

EPA (CERCLA) Reportable Quantity (in pounds)

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

California Proposition 65

This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

Right to Know Information

The recipient of this Safety Data Sheet should review applicable state and local regulations in order to determine whether additional "Right to Know" information is required (see https://www.osha.gov/dcsp/osp/statestandards.html). If applicable, the recipient may contact Texon (see Section 1) to obtain any such additional information.

International Hazard Classification

Canada:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the Safety Data Sheet contains all the information required by the CPR.

WHMIS Hazard Class:

A – Compressed Gas
B1 – Flammable Gases

National Chemical Inventories

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
07/25/2024	05/21/2015	H7001.1	Final

Revised Sections or Basis for Revision: GHS Updates

Identification (Section 1)
Hazards Identification (Section 2)
Composition/ Information on Ingredients (Section 3)
First Aid Measures (Section 4)
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Other Information (Section 16)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = Nation Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIAH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and Implied Warranties:
The information presented in this Safety Data Sheet is based upon data reasonably believed to be accurate as of the date this Safety Data Sheet was prepared, and such information is specific only to the product described herein. If the product described herein is used as a component of any other product or process, this information may not be valid. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER REPRESENTATION, WARRANTY OR GUARANTEE IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.

It is the recipient's obligation to evaluate this Safety Data Sheet and to investigate the product in order to make its own determination as to the suitability of the product for its particular purpose, to use this product safely and to comply with all applicable laws and regulations. Texon shall not be liable or responsible for any personal or property loss, damage, illness, death or injury arising out of or in any way connected to the handling, transportation, storage, disposal or use of the product, which is not the intended product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information contained in this Safety Data Sheet. Employers have a duty to tell employees and others who may be affected or be exposed to the product of any hazards described herein and of any precautions that should be taken. The recipient may contact Texon (see Section 1) to ensure that this Safety Data Sheet is the most current available. Alteration of this Safety Data Sheet by any party other than Texon is strictly prohibited.