

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code: 00012
Product Name: Isobutane
Company Name: Gas Innovations
Other Names: 2-Methyl Propane, Trimethyl Methane, R-600a (UL Classified)

18005 E. Hwy 225
 La Porte, TX 77571

Web site address: www.gasinnovations.com **Phone Number:** +1 (281)471-2200
Emergency Contact: 3E (within United States) +1 (866)303-2640
Information: Infotrac (outside of United States) +1 (352)323-3500

2. HAZARDS IDENTIFICATION

Flammable Gases: Category 1
Gas Under Pressure: Liquefied gas
Symbol:



GHS Signal Word: Danger

GHS Hazard Phrases: H220 - Extremely flammable gas.
 H280 - Contains gas under pressure; may explode if heated.
 OSHA-H01 - May displace oxygen and cause rapid suffocation
 CGA-HG01 - May cause frostbite
 CGA-HG04 - May form explosive mixtures with air

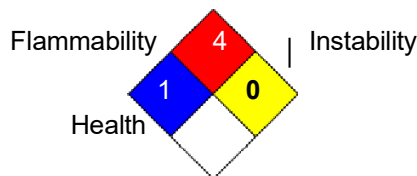
GHS Precaution Phrases: P202 - Do not handle until all safety precautions have been read and understood
 P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P280 - Wear eye protection, face protection, protective gloves, protective clothing

GHS Response Phrases: P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
 P381 - Eliminate all ignition sources if safe to do so.
 P302 - IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area, Get immediate medical advice/attention.
 P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P308+P313 - If exposed or concerned: Get medical advice/attention
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing

GHS Storage and Disposal Phrases: P410+403 - Protect from sunlight when ambient temperature exceeds 52°C/125 °F and store in well-ventilated place.
 CGA-PG10 - Use only with equipment rated for cylinder pressure
 CGA-PG14 - Approach suspected leak area with caution

Additional Hazards Information Use a back flow preventative device in the piping. Do not open the valve until connected to equipment prepared for use. Close valve after each use and when empty.

Hazard Rating System:



NFPA:	Special Hazard
Potential Health Effects (Acute and Chronic):	Inhalation of high concentration may cause rapid respiration, dizziness, fatigue, and nausea. Massive exposure may cause unconsciousness and death. Contact with the liquid phase or with the cold escaping from a cylinder may cause frostbite.
Inhalation:	May be harmful if inhaled. May cause respiratory tract irritation. This material can act as a simple asphyxiant by displacement of air.
Skin Contact:	May be harmful if absorbed through the skin. May cause skin irritation.
Eye Contact:	May cause eye irritation.
Ingestion:	May be harmful if swallowed. Aspiration hazard.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration
75-28-5	Isobutane (2-Methylpropane)	100 %

4. FIRST AID MEASURES

Emergency and First Aid Procedures:	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
In Case of Inhalation:	If inhaled, move the person into fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Consult a physician.
In Case of Skin Contact:	For liquid contact, warm areas gradually and get medical attention if there is evidence of frost bite or tissue damage. Flush area with lukewarm water. Do not rub affected areas. If blistering occurs, apply a sterile dressing. Seek medical attention.
In Case of Eye Contact:	Immediately flush your eyes with plenty of water for at least 15 minutes. Hold eyelids apart and flush eyes with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel.
In Case of Ingestion:	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Signs and Symptoms of Exposure:	Narcosis, Dermatitis. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness.
Note to Physician:	Consult a physician. Show this safety data sheet to the doctor in attendance. Epinephrine and other 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.

5. FIRE FIGHTING MEASURES

Flash Pt:	Not applicable for gases
Method Used:	Not applicable
Explosive Limits:	Lower level: 1.5% (Volume in air) Upper-level EL: 9.4 % (Volume in air)
Autoignition Pt:	860 F (460 C)
Suitable Extinguishing Media:	Stop the flow of gas. IF the flow cannot be stopped, let the fire burn out while cooling the cylinder and the surrounding areas using a water spray. Carbon dioxide, regular dry chemical, large fires: water spray or fog
Fire Fighting Instructions:	<p>Move container from fire area if it can be done without risk. Do not direct water at source of leak or safety devices; icing may occur. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Personnel may have to wear approach-type protective suits and positive pressure self-contained breathing apparatus. Firefighters' turnout gear may be inadequate. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.</p> <p>Cylinders exposed to fire may rupture with violent force. Extinguishing surrounding fire and keep cylinders cool by applying water from a maximum possible distance with a water spray. Flammable gases may spread from a spill after the fire is extinguished and be subject to re-ignition. Do not discharge into drains.</p>
Flammable Properties and Hazards:	<p>CONDITIONS OF FLAMMABILITY: Flammable in the presence of an oxidizing gas (e.g. air), a source of ignition, and when the concentration of the gas is between the lower and upper explosive limits. Keep away from heat/sparks/open flame/hot surface/oxidizing gas. No smoking. High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide, and oxides of nitrogen, sulfur, Forms explosive mixtures in air and with oxidizing agents</p>

6. ACCIDENTAL RELEASE MEASURES

Protective Precautions, Protective Equipment and Emergency Procedures:	Use proper personal protective equipment as indicated in Section 8. Wear protective equipment consistent with the site emergency plan. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Steps To Be Taken in Case Material Is Released or Spilled:	<p>Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Forms explosive mixtures with air. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed.</p> <p>Remove all sources of ignition if safe to do so. Reduce vapors with fog or fine water spray, taking care not to spread liquid with water. Shut off flow if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable vapors may spread from leak and could explode if reignited by sparks or flames.</p> <p>Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an appropriate device.</p> <p>For controlling larger flows, personnel may have to wear approach-type protective suits and self-contained breathing apparatus.</p>

7. HANDLING AND STORAGE**Precautions To Be Taken in Handling:**

Only experienced and properly instructed people should handle gases under pressure. Take measures to prevent the buildup of electrostatic charge. Avoid inhalation of vapor or mist. Keep away from heat, sparks and flames. Keep away from sources of ignition - No smoking. Use spark-proof tools and explosion proof equipment. Use in a closed system. Secure all lines and equipment. Install check valves or traps to prevent sucking back to the cylinder. Ground all lines and equipment. Leak check the lines and equipment. Have an emergency plan covering steps to be taken in the event of an accidental release.

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving the cylinder, always keep in place removable valve cover. Never attempt to repair or modify container valves or safety relief devices. Never attempt to lift a cylinder with its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. Never attempt to transfer gases from one container to another.

Precautions To Be Taken in Storing:

Cylinders should be stored and used in dry, well-ventilated areas away from sources of heat or ignition. Store away from oxidizers. Protect containers against damage. Do not store above 125F. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general condition and leakage.

Other Precautions:

When handling a product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; stored and used with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit. Do not remove or deface labels provided by the supplier for the identification of the container contents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
75-28-5	Isobutane (2-Methylpropane)	No	1000ppm STEL	NIOSH TWA: 800ppm MEXICO TWA: 1000ppm

Respiratory Equipment (Specify Type):

If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Gas displaces the air and causes a deficiency of oxygen and the possibility of asphyxiation.

Eye Protection:

Wear safety glasses when handling cylinders, vapor-proof goggles and a face shield during cylinder change out or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Protective Gloves:

Wear appropriate gloves to prevent skin exposure.

Other Protective Clothing:

Wear safety shoes while handling containers

Engineering Controls (Ventilation etc.):

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Work/Hygienic/Maintenance Practices:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Do not eat, drink or smoke when using the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[X] Gas	[] Liquid	[] Solid
Appearance:	Colorless		
Freezing Point:	-159 °C		
Boiling Point:	-12 °C (10 °F)		
Autoignition Pt:	860 F (460 C)		
Flash Pt:	Not applicable		
Method used:	Not applicable		
Explosive Limits:	Lower level: 1.5% (Volume in air)	Upper-level EL: 9.4 % (Volume in air)	
Specific Gravity (Water = 1):	0.549 at 20 °C		
Density:	NA		
Vapor Pressure (vs. Air or mm Hg):	3.1 Atm at 21 °C		
Vapor Density (air=1)	2.1		
Evaporation Rate:	> 1 (Ether=1)		
Solubility in Water:	54 mg/l		
Viscosity:	0.0017 cp		
Octanol/Water Partition Coefficient:	2.76		
pH:	NA		
Percent Volatile:	No data.		
Molecular Formula:	C ₄ H ₁₀		
Molar mass:	58.14 g/mol		

10. STABILITY AND REACTIVITY

Reactivity:	Can form explosive mixture with air and oxidizing agents.
Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	Heat, flames and sparks. Extremes of temperature and direct sunlight. Minimize contact with material. Containers may rupture or explode if exposed to heat.
Incompatibility Materials to Avoid:	Strong oxidizing agents, Air.
Hazardous Decomposition or Byproducts:	High temperatures and fire conditions can result in the formation of carbon monoxide and carbon dioxide, and oxides of nitrogen, sulfur, Forms explosive mixtures in air and with oxidizing agents.
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. TOXICOLOGICAL INFORMATION

Epidemiology:	No information available.		
Teratogenicity:	No information available		
Reproductive Effects:	No information available		
Mutagenicity:	No information available		
Neurotoxicity:	No information available		
CAS#	Acute toxicity		
75-28-5	TCLo, Inhalation- Species: Human- 280 mg/m ³ . NOAEL – Inhalation – Species: Rat – 10 ppm		
Irritation or Corrosion:	None that are directly attributable to normal use of this material		
Carcinogenicity:	NTP - No	IARC Monographs - No	OSHA Regulated - No

12. ECOLOGICAL INFORMATION

General Ecological Information:	Environmental: No information available. Physical: No information available.
Results of PBT and vPvB assessment:	No data available.
Persistence and Degradability:	The substance is readily biodegradable. Unlikely to persist.
Bio accumulative Potential:	Bioconcentration potential in aquatic organisms is low based on a BCF value of 27
Mobility in Soil:	Expected to have high mobility in soil.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Do not attempt to dispose of residual or unused quantities. Return container to supplier. Dispose of contents/containers in accordance with local/regional/national/international regulations. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor
-------------------------------	--

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):	
DOT Proper Shipping name:	Isobutane.
DOT Hazard Class:	2.1 FLAMMABLE GAS
UN/NA number:	UN1969

Labels:



Sea Transport:	
Transport document description (IMDG):	UN 1969, 2
Proper Shipping Name:	ISOBUTANE
UN-No. (IMDG):	1969
Class (IMDG):	2 - Gases
MFAG-No:	115
Air Transport:	
Transport document description (IATA):	UN 1969, 2
Proper Shipping Name:	Isobutane
UN-No. (IATA):	1969
Class (IATA):	2

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
75-28-5	Isobutane (2-Methylpropane)	No	No	No

CAS #	Hazardous Components (Chemical Name)
75-28-5	Isobutane (2-Methylpropane)

Other US EPA or State Lists

TSCA: Yes - Inventory; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: Yes; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes - 1040; NY Part 597: No; PA HSL: Yes - 1; SC TAP: No; WI Air: No; MN: No;

CAS #	Hazardous Components (Chemical Name)
75-28-5	Isobutane (2-Methylpropane)

International Regulatory Lists

Canadian DSL: Yes; Canadian NDSL: No; Mexico INSQ: Yes - 1075; Australia ICS: Yes; New Zealand IOC: Yes; China IECSC: Yes; Japan ENCS: Yes - (2)-4; Korea ECL: Yes -KE-24865; Philippines ICCS: Yes; REACH: Yes -(R), (P), C1, M2; TH –TECI: Yes; TW: Yes; CN: Yes; VN(Draft): Yes;

16. OTHER INFORMATION

Revision Date: 07/31/2024

Additional Information About This Product: No data available.

NFPA Ratings:

- 0= Minimal Hazard
- 1= Slight Hazard
- 2= Moderate Hazard
- 3= Serious Hazard
- 4= Severe Hazard

Company Policy or Disclaimer: The information, recommendations, and suggestions herein were compiled from reference material and other sources believed to be reliable. However, the SDS's accuracy or completeness is not guaranteed by Gas Innovations or its affiliates, nor is any responsibility assumed or implied for any loss or damage resulting from inaccuracies or omissions. Since conditions of use are beyond our control, no warranties of merchantability of fitness for a particular purpose are expressed or implied. This SDS is not intended as a license to operate under, or a recommendation to infringe on, any patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.