

MATERIAL SAFETY DATA SHEET

ISOBUTYLENE CONCENTRATE

ISSUE DATE: July 21, 2000

Emergency Phone Number: (713)475-7771

LAST REVISION: June 1, 1999

CHEMTREC (800)424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Isobutylene Concentrate

Chemical Name: Mixture

Manufacturer: Texas Petrochemicals LP
 8600 Park Place Blvd.
 Houston, Texas 77017

Synonyms:

2. COMPOSITION/INFORMATION ON INGREDIENTS

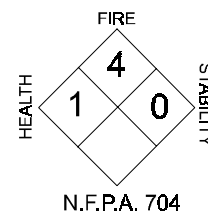
<u>Component</u>	<u>CAS Reg. No.:</u>	<u>Liq Vol %:</u>
Isobutylene	115-11-7	88 - 90
Butanes	mixture	5 - 15
1,3 Butadiene	106-99-0	0.1 - 1

Compositions given are typical values, not specifications.

3. HAZARD IDENTIFICATION

Emergency Overview

- Colorless gas with mild aromatic odor
- Extremely flammable
- Irritating to the eyes and mucous membranes
- Harmful if inhaled – may cause unconsciousness
- Contact with liquid can cause frostbite
- Suspected cancer and reproductive hazard (butadiene)



Eye Contact: Vapors may cause eye irritation. Direct contact of liquid to the eye may cause severe injury due to frostbite.

Skin Contact: Liquid isobutylene concentrate can cause frostbite to skin due to the cooling from rapid evaporation.

Inhalation: Vapors may irritate the nose, throat and lungs. High concentrations in immediate area can displace oxygen and cause dizziness, unconsciousness, and even death with longer exposures.

Ingestion: Liquid contact may cause injury due to frostbite.

Chronic Effects: Chronic exposure to 1,3 butadiene may cause cancer in humans. This is based on tests with laboratory animals and human epidemiological studies. 1,3 butadiene exposure may also cause female and male reproductive disorders based on test with laboratory animals. See Section 11.

4. FIRST AID MEASURES

- Eye Contact: Flush with plenty of water. Seek medical attention immediately.
- Skin Contact: Remove contaminated clothing. Flush with plenty of water. Seek medical attention if skin is frostbitten.
- Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration. Get immediate medical attention.
- Ingestion: Seek medical attention. Do not give anything by mouth.

5. FIRE FIGHTING MEASURES

Flash Point: °F Flammability Limits
- 105° (Vol. % in Air)
Lower: 1.8 Upper: 9.6

Auto Ignition Temperature

869°F

Fire Hazards:

Extremely flammable gas. Releases flammable vapors below normal ambient temperatures. Vapors are heavier than air and may travel long distances before igniting and flashing back to vapor source.

Extinguishing Media

Water, dry chemical, or carbon dioxide.

Fire Fighting Procedures

Do not extinguish the fire until the flow of isobutylene concentrate can be stopped. Use water streams to cool exposed structures and equipment. Firefighting personnel should wear full turnout gear and a positive pressure self contained breathing apparatus (SCBA). For unignited vapor releases, see Section 6

Hazardous Combustion Products

Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Spill/Leak Procedures: Evacuate non-essential personnel. Extinguish all ignition sources in the area. Prevent vapors/liquid from entering sewers and/or ditches. Apply water sprays from a safe distance to help disperse the vapor cloud. Be prepared for sudden ignition of vapors. In cold climates pooled liquid may remain on the ground. Dike down grade to prevent spread of the spill. Collection of liquid spill should be done only if suitable collection and storage equipment are available (minimum pressure rating 75 psig). Consult appropriate regulatory agencies for reporting and disposal requirements.

7. HANDLING AND STORAGE

Handling: Avoid eye and skin contact, and inhalation of vapors. See Section 8 for personal protective Equipment recommendations. Properly and/or ground hoses and equipment used for transferring this product to prevent ignition from static electrical charge.

Storage: Isobutylene concentrate must be stored in pressure rated vessels and containers, (see NFPA 58).

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limits:

<u>Component</u>	<u>OSHA</u>	<u>ACGIH</u>	<u>Other</u>
isobutylene	none	none	
1,3 butadiene	8 hr TWA PEL: 1.0 ppm 15 min TWA STEL: 5.0 ppm	TLV: 2.0 ppm	
butanes	none	TLV 800 ppm	

Exposure Control: Process enclosures, closed systems, and local exhaust ventilation should be used to control exposures. Ventilation systems should have explosion proof equipment. Never use isobutylene concentrate in closed or confined spaces without ventilation. For fires or releases involving isobutylene concentrate always approach from upwind/uphill. Safety showers and eyewash stations should be located near areas with liquid contact hazards.

Personal Protection

Eye Protection: In addition to safety glasses, chemical splash goggles and/or faceshield should be worn depending on the task.

Skin Protection: Gloves, aprons, and chemical resistant garments should be selected with regard to the task to be performed and the hazard potential for skin contact. In general, garments and gloves made from an impervious material that provides thermal protection should be used if liquid contact is probable. End users are strongly urged to consult glove/garment manufacturers for specific guidance.

Respiratory Protection: Air purifying respirators with organic vapor cartridges may be used if the airborne concentration of the contaminant is known. OSHA's final rule on 1,3 butadiene, 29 CFR 1910.1051 has specific usage restrictions for air purifying respirators. These restrictions are based on findings of short breakthrough times for 1,3 butadiene with organic vapor cartridges. Refer to NIOSH's Respirator Decision Logic and/or the respirator manufacturer for guidance on the specific type of respirator to use. For isobutylene concentrate releases, spills, fires, or situations where the airborne concentration is unknown, use a NIOSH approved, positive pressure self-contained breathing apparatus (SCBA).

9. PHYSICAL AND CHEMICAL PROPERTIES

<u>Physical Form:</u>	Clear Liquid (under pressure)	<u>Odor:</u>	Mild Aromatic
<u>Boiling Point:</u>	14 – 39°F	<u>Melting Point:</u>	Not Applicable
<u>Ph:</u>	Not Applicable	<u>Solubility in Water:</u>	Negligible
<u>Specific Gravity:</u>	0.6 60°F/60°F	<u>% Volatile by Weight:</u>	100
<u>Vapor Pressure:</u>	approx 32 psia @ 60°F	<u>Vapor Density:</u>	2 (air = 1)
<u>Evaporation Rate:</u>	gas at room temperature	<u>Molecular Weight:</u>	approx 56

10. STABILITY AND REACTIVITY

Stability: Stable

Reactivity: Incompatible with oxidizing materials

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

This mixture has not been tested as a whole. The following is toxicological data for the major constituents.

Isobutylene

LC50: Inhalation: Rat – 620 g/m³/4H, Mouse – 415 g/m³/2H

Isobutylene is a simple asphyxiant. In short term animal inhalation studies effects ranged from narcosis and cardiac sensitization, to respiratory paralysis and death in extremely high concentrations. Isobutylene produced negative results in the following mutagenicity tests: AmesTest, Mouse Lymphoma, and Cell Transformation

1,3 butadiene

LC50: Inhalation: Rat – 130,000 ppm 4H, Mouse – 122,000 ppm 2H

Carcinogenicity: 1,3 butadiene is a known animal carcinogen and a probable human carcinogen. Animal studies have shown cancers in several organs and in several species of animals. Human epidemiological studies have shown a statistically significant increase of lymphatohemopoietic cancers in certain segments of a population of workers with exposure to 1,3 butadiene. OSHA feels that the weight of this evidence suggests a causal relationship between 1,3 butadiene exposure and cancer.

Reproductive effects: 1,3 butadiene showed effects on reproductive organs of sexes of mice. Birth defects and fetal toxicity was seen in rats, but only at doses fatal to the mother.

Butane

LC50: Inhalation: Rat – 658 g/m³/4H, Mouse – 680 g/m³/2H

Butane is a simple asphyxiant. Studies with dogs showed butane to be a weak cardiac sensitizer and high exposure concentrations produced anesthetic effects in various species.

12. ECOLOGICAL INFORMATION

None available

13. DISPOSAL CONSIDERATIONS

The user of this product is urged to consult local, state, and federal regulatory agency guidelines regarding proper disposal.

14. TRANSPORTATION INFORMATION

D.O.T Shipping Name: Liquified Petroleum Gas

D.O.T. Hazard Class: 2.1

U.N. Number: UN1075

15. REGULATORY INFORMATION

OSHA: This product is considered hazardous according to 29 CFR 1910.1200 Federal OSHA Hazard Communications Standard. 1,3 butadiene is considered an OSHA carcinogen. Please refer to OSHA's final rule for 1,3 butadiene, 29 CFR 1910.1051.

EPA:

Section 302-Extremely Hazardous Substances: No constituents of this product are listed.

CAA – RMP Threshold Quantity: 10,000 pounds for each constituent

CERCLA Reportable Quantity: 10 pounds for 1, 3 butadiene; none for other constituents

SARA Section 311/312 Hazards: isobutylene and butane – fire, pressure, and immediate health

1,3 butadiene – fire, reactivity, pressure, immediate and delayed health

16. OTHER INFORMATION

The information presented herein is to the best of the company's knowledge true and reliable. This information is supplied for informational purposes only, and without any guarantee or warranty, expressed or implied, regarding its accuracy, correctness, or completeness. Since the actual use of the product by others is beyond our control, Texas Petrochemicals LP assumes no responsibility or liability for loss, damage, or expense arising out of any use by others of the products referred to herein.