



SAFETY DATA SHEET

1. Identification

Product identifier Isobutane
Other means of identification
SDS number 3
Recommended use Fuel.
Recommended restrictions None known.
Manufacturer / Importer / Supplier / Distributor information

Company name DCP Midstream
Address 370 17 Street Suite 2500 Denver, CO 80202
Telephone (303) 595-3331
E-mail safety@dcpmidstream.com
Contact person Mark Prewitt
Emergency phone number CHEMTREC - 24 HOURS: 800-424-9300

2. Hazard(s) identification

Physical hazards Flammable gases Category 1
Gases under pressure Liquefied gas
Health hazards Not classified.
OSHA hazard(s) Simple asphyxiant

Label elements

Hazard symbol



Signal word

Hazard statement

Danger
Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response

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

Storage

Protect from sunlight. Store in a well-ventilated place.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Not classified.

3. Composition/information on ingredients

Mixture

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Isobutane		75-28-5	95
Butane		106-97-8	2-5
Propane		74-98-6	0-3

Composition comments

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

4. First-aid measures

Inhalation	Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Skin contact	Frostbite: Do not removed clothes, but flush with copious amounts of lukewarm water. Call an ambulance and continue to flush during transportation to the hospital.
Eye contact	Immediately flush with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.
Ingestion	Not likely, due to the form of the product.
Most important symptoms/effects, acute and delayed	Very high exposure can cause suffocation from lack of oxygen.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures



NFPA 704 Hazard Class

Health: 1

Flammability: 4

Instability: 0

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

Suitable extinguishing media	Carbon dioxide or dry powder.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Cylinders can burst violently when heated, due to excess pressure build-up. Gas may travel considerable distance to a source of ignition and flash back. May form explosive mixtures with air.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
Fire-fighting equipment/instructions	Evacuate area. Allow gas to burn if flow cannot be shut off immediately. Apply water from safe distance to cool container and protect surrounding area.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Eliminate all sources of ignition. Keep public away from danger area. Ventilate closed spaces before entering. Do not breathe gas. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Stop leak if you can do so without risk. Allow gas to dissipate into the atmosphere.
Environmental precautions	Environmental manager must be informed of all major spillages.

7. Handling and storage

Precautions for safe handling Provide adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. Vapors are heavier than air and may travel along the floor and in the bottom of containers. Vapors may be ignited by a spark, a hot surface or an ember. Take precautionary measures against static discharges. Do not breathe gas. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. The product is extremely flammable. May form explosive mixtures with air. Avoid heat, sparks, open flames and other ignition sources.
Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Provide adequate ventilation. Keep away from heat, sparks and open flame.

Naturally Occurring Radioactive Materials (NORM)

This product may contain detectable quantities of Naturally Occurring Radioactive Materials (NORM) above background levels. This NORM material consists of small amounts of radon, a naturally occurring radioactive gas; and the solid decay products of radon, called radon daughters. Transport vessels should be assessed for gamma radiation; access around the equipment may need to be restricted in accordance with OSHA 29 CFR 1910.96. For vessel entry, this equipment should be assumed to be internally contaminated with long half-life decay products that emit beta and alpha radiation, which is a radiation hazard if inhaled or ingested.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m3
		1000 ppm

U.S. ACGIH Threshold Limit Values

Components	Type	Value
Isobutane (CAS 75-28-5)	TWA	1000 ppm
Propane (CAS 74-98-6)	TWA	1000 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Butane (CAS 106-97-8)	REL	1900 mg/m3
		800 ppm
Isobutane (CAS 75-28-5)	REL	1900 mg/m3
		800 ppm
Propane (CAS 74-98-6)	REL	1800 mg/m3
		1000 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering Controls Explosion proof exhaust ventilation should be used. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Risk of contact: Wear safety glasses with side shields.

Skin protection
Hand protection Wear cold insulating gloves. Suitable gloves can be recommended by a glove supplier.
Other Wear suitable protective clothing.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance	Colorless gas.
Physical state	Gas.
Form	Liquefied gas.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	10.4 °F (-12°C)
Flash point	-117.4 °F (-83 °C) Estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	2.0 %
Flammability limit – upper (%)	8.8 %
Vapor pressure	70 - 75 (37.8°C / 100°F)
Vapor density	Not available.
Relative density	0.56 (Water=1)
Relative density temperature	60 °F (15.6 °C)
Solubility(ies)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	860 °F (460 °C)
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	None under normal conditions.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous Reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition Products Carbon dioxide. Carbon monoxide.

11. Toxicological information

Information on likely routes of exposure

Ingestion Not likely, due to the form of the product.

Inhalation Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Suffocation(asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Skin contact Contact with liquefied gas may cause frostbite.

Eye contact Contact with liquefied gas may cause frostbite.

Symptoms related to the physical, chemical and toxicological characteristics Very high exposure can cause suffocation from lack of oxygen. Contact with liquefied gas may cause frostbite.

Information on toxicological effects

Acute toxicity This product is an asphyxiant gas which can cause unconsciousness/death if OXYGEN levels are sufficiently reduced.

Components	Species	Test Results
Butane (CAS 106-97-8)		
Acute		
<i>Inhalation</i>		
LC50	Rat	658 mg/l, 4 Hours
Isobutane (CAS 75-28-5)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	52 mg/l, 1 Hour
Propane (CAS 74-98-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 1442.847 mg/l, 15 minutes

Skin corrosion/irritation Not likely, due to the form of the product.

Serious eye damage/eye Irritation May cause eye irritation.

Respiratory sensitization Not available.

Skin sensitization Not a skin sensitizer.

Germ cell mutagenicity No data available.

Carcinogenicity No data available.

Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product contains volatile organic compounds which have a photochemical ozone creation potential.
Persistence and degradability	No data available.
Bioaccumulative potential	
	Partition coefficient n-octanol / water (log Kow)
	Propane 2.36
	Isobutane 2.76
	Butane 2.89
Mobility in soil	Not available.
Other adverse effects	Not established.

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 in accordance with local regulations.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 °F
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Not applicable.

14. Transport information

DOT	
UN number	UN1969
UN proper shipping name	Isobutane
Transport hazard class(es)	2.1
Subsidiary class(es)	Not available.
Packing group	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	2.1
Special provisions	19, T50
Packaging exceptions	306
Packaging non bulk	304
Packaging bulk	314, 315
IATA	
UN number	UN1969
UN proper shipping name	Isobutane
Transport hazard class(es)	2.1
Subsidiary class(es) -	
Packaging group	Not available.
Labels required	Not available.
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG	
UN number	UN1969
UN proper shipping name	ISOBUTANE
Transport hazard class(es)	2.1
Subsidiary class(es) -	
Packaging group	Not available.
Labels required	Not available.
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

Butane (CAS 106-97-8)	LISTED
Isobutane(CAS 75-28-5)	LISTED
Propane (CAS 74-98-6)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance	No
SARA 311/312 Hazardous Chemical	Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8)
Isobutane(CAS 75-28-5)
Propane (CAS 74-98-6)

Safe Drinking Water Act (SDWA)

Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)	Not regulated.
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US state regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Butane (CAS 106-97-8)
Isobutane(CAS 75-28-5)
Propane (CAS 74-98-6)

US. New Jersey Worker and Community Right-to-Know Act

Butane (CAS 106-97-8)	500 LBS
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Isobutane(CAS 75-28-5) 500 LBS
Propane (CAS 115-07-1) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

Butane (CAS 106-97-8)
Isobutane(CAS 75-28-5)
Propane (CAS 74-98-6)

US. Rhode Island RTK

Butane (CAS 106-97-8)
Isobutane(CAS 75-28-5)
Propane (CAS 74-98-6)

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last version

Issue date 11-28-2012

Revision date 2-4-2013

Version # 01

Further information Not available.

References ACGIH

EPA: Acquire database

NLM: Hazardous Substances Data Base

US. IARC Monographs on Occupational Exposures to Chemical Agents

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.