



Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

- Product Name** • **Normal Butane**
- Synonyms** • Commercial Butane; Dimethylmethane; LPG; N-Butane

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)** • Normal Butane is a gasoline blending component

1.3 Details of the supplier of the safety data sheet

- Manufacturer** • Delek Refining, Ltd.
425 McMurrey Drive
Tyler, TX 75702
United States
www.delekus.com
- Telephone (General)** • 903-579-3400

1.4 Emergency telephone number

- Manufacturer** • (800) 424-9300 - 24 Hour CHEMTREC - National
- Manufacturer** • (703) 527-3887 - 24 Hour CHEMTREC - International

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- CLP** • Flammable Gases 1 - H220
Liquefied Gas - H280
- DSD/DPD** • Extremely Flammable (F+)
R12

2.2 Label Elements

CLP

DANGER



- Hazard statements** • H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated

Precautionary statements

Prevention ● P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.

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

Storage/Disposal ● P410+P403 - Protect from sunlight. Store in a well-ventilated place.

DSD/DPD



Risk phrases ● R12 - Extremely flammable.

Safety phrases ● S9 - Keep container in a well ventilated place
S16 - Keep away from sources of ignition - No Smoking.

2.3 Other Hazards

CLP

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
According to European Directive 1999/45/EC this material is considered dangerous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Flammable Gases 1
Liquefied Gas
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** ● Extremely flammable gas
Contains gas under pressure; may explode if heated
May cause drowsiness or dizziness
May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention ● Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
Avoid breathing gas, mists, vapours, and/or spray.
Use only outdoors or in a well-ventilated area.

Response ● Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

Storage/Disposal ● Store in a well-ventilated place. Keep container tightly closed.
Protect from sunlight.
Store locked up.
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
- Flammable Gases - B1

2.2 Label elements

WHMIS



- Compressed Gas - A
- Flammable Gases - B1

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Butane	CAS:106-97-8 EC Number:203-448-7	75% TO 95%	Inhalation-Rat LC50 • 658 g/m ³ 4 Hour(s)	EU DSD/DPD: Annex VI, Table 3.2: F+; R12 EU CLP: Annex VI, Table 3.1: Flam. Gas 1; Press. Gas OSHA HCS 2012: Flam. Gas 1; Press. Gas; STOT SE 3: Narc.; Simp. Asphyx.	NDA
Isobutane	CAS:75-28-5 EC Number:200-857-2	5% TO 25%	Inhalation-Rat LC50 • 658000 mg/m ³ 4 Hour(s)	EU DSD/DPD: Annex VI, Table 3.2: F+; R12 EU CLP: Annex VI, Table 3.1: Flam. Gas. 1, H220; Press. Gas - Liq., H280 OSHA HCS 2012: Flam. Gas 1; Press. Gas - Liq.; Simp. Asphyx.	NDA

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Administer oxygen if breathing is difficult. If breathing has

- stopped, apply artificial respiration. Obtain medical attention immediately if inhaled.
- Skin**
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected areas or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has NOT occurred, immediately and thoroughly wash contaminated skin with soap and water.
- Eye**
- If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the lower and upper eyelids. If irritation, pain, swelling, lacrimation, or photophobia persist, get medical attention as soon as possible.
- Ingestion**
- Never give anything by mouth to an unconscious person. If frostbite has occurred, seek medical attention immediately; do NOT rub the affected areas or flush them with water. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • Stop the flow of gas before extinguishing the fire with water fog, carbon dioxide, or dry chemical.

Unsuitable Extinguishing Media • No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- **EXTREMELY FLAMMABLE**
Will be easily ignited by heat, sparks or flames.
Will form explosive mixtures with air.
Containers may explode when heated.
Vapors from liquefied gas are initially heavier than air and spread along ground.
Vapors may travel to source of ignition and flash back.
Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
Ruptured cylinders may rocket.
Empty containers may contain product residue which could produce explosive vapors.

Hazardous Combustion Products

- Products of combustion may contain carbon dioxide or carbon monoxide.

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighters' protective clothing will only provide limited protection.
Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.
DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED
LARGE FIRES: Move containers from fire area if you can do it without risk.
FIRE INVOLVING TANKS AND CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Cool containers with flooding quantities of water until well after fire is out.
FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

FIRE INVOLVING TANKS: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Shut off gas source and allow fire to burn its self out.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not touch or walk through spilled material. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

Emergency Procedures

- ELIMINATE** all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. All equipment used when handling this product must be grounded. Stay upwind. **LARGE SPILL:** Consider initial downwind evacuation for at least 800 meters (1/2 mile) Fire: If tank, rail car or tank truck is involved in fire, ISOLATE for 1600 meters (1 mile) in all directions; also consider initial evacuation for 1600 meters (1 mile) in all directions. If possible, turn leaking containers so that gas escapes rather than liquid. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Isolate area until gas has dispersed.

6.2 Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas. Runoff from fire control may cause pollution. Avoid run off to waterways and sewers. Dike fire control water for later disposal.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not direct water at spill or source of leak. Prevent spreading of vapors through sewers, ventilation systems and confined areas. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Keep away from heat and sparks. Keep away from fire - No Smoking.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Keep away from fire. Store in proper cylinders and tanks. A minimum of a 20% vapor space (or outage) should be maintained on all containers. Do not store with strong oxidizers. Ventilate enclosed areas.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines			
	Result	ACGIH	NIOSH
Propane, 2-methyl-	STELs	1000 ppm STEL	Not established

(75-28-5)	TWAs	Not established	800 ppm TWA; 1900 mg/m3 TWA
Butane (106-97-8)	STELs	1000 ppm STEL	Not established
	TWAs	Not established	800 ppm TWA; 1900 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls

- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced. In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/Face

- Wear protective eyewear (goggles, face shield, or safety glasses).

Skin/Body

- Wear appropriate gloves.

Environmental Exposure Controls

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

STEL = Short Term Exposure Limits are based on 15-minute exposures

MSHA = Mine Safety and Health Administration

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

NIOSH = National Institute of Occupational Safety and Health

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless liquid/invisible vapor, unpleasant odor.
Color	Colorless	Odor	Unpleasant odor.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	27 F(-2.7778 C)	Melting Point	-217 F(-138.3333 C)
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	= 0.58 Water=1	Water Solubility	Slightly Soluble 0.1 to 1 %
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	51 psia	Vapor Density	2 Air=1
Evaporation Rate	Data lacking	Volatiles (Wt.)	100 %
Volatiles (Vol.)	100 %		
Flammability			
Flash Point	-76 F(-60 C)	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Undue exposure to air, oxidizing materials, heat, and flame.

10.5 Incompatible materials

- Strong oxidizing agents.

10.6 Hazardous decomposition products

- No data available.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Isobutane (5% TO 25%)	75-28-5	Acute Toxicity: Inhalation-Rat LC50 • 57 pph 15 Minute(s); <i>Behavioral:</i> Tremor ; <i>Behavioral:</i> Convulsions or effect on seizure threshold ; <i>Lungs, Thorax, or Respiration:</i> Respiratory depression
Butane (75% TO 95%)	106-97-8	Acute Toxicity: Inhalation-Rat LC50 • 658 g/m ³ 4 Hour(s)

GHS Properties	Classification
Acute toxicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Aspiration Hazard	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Carcinogenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Germ Cell Mutagenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Skin corrosion/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
STOT-RE	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
STOT-SE	EU/CLP • Data lacking OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects

Toxicity for Reproduction	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Serious eye damage/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking

Potential Health Effects

Inhalation

- Acute (Immediate)**
- May cause asphyxiation. The signs and symptoms may include nausea, drowsiness, blue coloration of the skin and lips, unconsciousness, and death. May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.
- Chronic (Delayed)**
- No data available

Skin

- Acute (Immediate)**
- Contact may cause frostbite. Skin may be flushed and irritated as frostbite develops. Skin may change to white or grayish yellow and blisters may appear.
- Chronic (Delayed)**
- No data available

Eye

- Acute (Immediate)**
- Contact may cause frostbite.
- Chronic (Delayed)**
- No data available

Ingestion

- Acute (Immediate)**
- Under normal conditions of use, no health effects are expected. Intentional ingestion may cause frostbite to areas of contact.
- Chronic (Delayed)**
- No data available.

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information

12.1 Toxicity

- Material Data Lacking.

12.2 Persistence and degradability

- Material Data Lacking.

12.3 Bioaccumulative potential

- Material Data Lacking.

12.4 Mobility in Soil

- Material Data Lacking.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Conduct waste gas (not liquid) to a furnace by means of piping and incinerate with operating practices and any state and local applicable government regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1011	Butane	2.1	NDA	NDA
TDG	UN1011	BUTANE	2.1	NDA	NDA
IMO/IMDG	UN1011	BUTANE	2.1	NDA	NDA
IATA/ICAO	UN1011	Butane	2.1	NDA	NDA

14.6 Special precautions for user

- None specified.

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

- Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Fire, Pressure(Sudden Release of)

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Butane	106-97-8	Yes	No	Yes	No	Yes
Isobutane	75-28-5	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- | | | |
|-------------|----------|---------------------------------------|
| • Isobutane | 75-28-5 | A, B1 (listed under Methyl-2 propane) |
| • Butane | 106-97-8 | A, B1 |

Canada - WHMIS - Ingredient Disclosure List

- | | | |
|-------------|----------|------------|
| • Isobutane | 75-28-5 | Not Listed |
| • Butane | 106-97-8 | 1 % |

Environment

Canada - CEPA - Priority Substances List

- | | | |
|-------------|----------|------------|
| • Isobutane | 75-28-5 | Not Listed |
| • Butane | 106-97-8 | Not Listed |

Other Agency Information

Other**AIHA - Emergency Response Planning Guidelines - ERPG-1 Values**

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

United States**Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

Environment**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Flammable Substances

• Isobutane	75-28-5	10000 lb threshold quantity
• Butane	106-97-8	10000 lb threshold quantity

U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Toxic Substances

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed
U.S. - RCRA (Resource Conservation & Recovery Act) - F Series Wastes - Wastes from Nonspecific Sources		
• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed
U.S. - RCRA (Resource Conservation & Recovery Act) - K Series Wastes - Wastes from Specified Sources		
• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Isobutane	75-28-5	Not Listed
• Butane	106-97-8	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date

- 28/May/2015

Preparation Date

- 30/October/1991

Disclaimer/Statement of Liability

- The above data is based on tests and experience which Delek Refining, Ltd believes reliable and is supplied for information purposes only. Delek Refining, Ltd disclaims any liability for damage or injury which results from the use of the above data and nothing contained therein shall constitute a guarantee, warranty (including warranty of merchantability) or representation (including freedom from patent liability) by Delek Refining, Ltd with respect to the data, the product described, to their use for any specific purpose, even if that purpose is known to Delek Refining, Ltd.

Key to abbreviations

NDA = No Data Available

