Safety Data Sheet

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

1.1 Product identifier

Product Name • **Olefins**

Synonyms • Unsaturated Aliphatic Hydrocarbon

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

Relevant identified use(s) • Olefins are a chemical feedstock

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

Telephone (General) • 903-579-3502 - Fax

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
Germ Cell Mutagenicity 1B - H340
Carcinogenicity 1A - H350

DSD/DPD • Extremely Flammable (F+)
Carcinogenic Substances - Category 1
Mutagenic Substances - Category 2
R12, R45, R46

2.2 Label Elements

CLP

DANGER

Hazard statements
- H220 - Extremely flammable gas
  H280 - Contains gas under pressure; may explode if heated
  H340 - May cause genetic defects.
  H350 - May cause cancer.

Precautionary statements

Prevention
- P201 - Obtain special instructions before use.
  P202 - Do not handle until all safety precautions have been read and understood.
  P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
  P281 - Use personal protective equipment as required.

Response
- P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
  P381 - Eliminate all ignition sources if safe to do so.
  P308+P313 - IF exposed or concerned: Get medical advice/attention.

Storage/Disposal
- P410+P403 - Protect from sunlight. Store in a well-ventilated place.
  P405 - Store locked up.
  P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases
- R12 - Extremely flammable.
  R45 - May cause cancer.
  R46 - May cause heritable genetic damage.

Safety phrases
- S9 - Keep container in a well ventilated place
  S16 - Keep away from sources of ignition - No Smoking.
  S53 - Avoid exposure - obtain special instructions before use.

2.3 Other Hazards

CLP
- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
  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
- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
  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
  Germ Cell Mutagenicity 1B
  Carcinogenicity 1A
  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 genetic defects.
  May cause cancer.
  May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention

- Obtain special instructions before use.
  Do not handle until all safety precautions have been read and understood.
  Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
  Wear protective gloves, clothing , and eye/face protection , .

Response

- Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
  Eliminate all ignition sources if safe to do so.
  IF exposed or concerned: Get medical advice/attention.

Storage/Disposal

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

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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
  Other Toxic Effects - D2A

2.2 Label elements

WHMIS

- Compressed Gas - A
  Flammable Gases - B1
  Other Toxic Effects - D2A

2.3 Other hazards

WHMIS

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
  This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
  In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

See Section 12 for Ecological Information.

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**
Propane	**CAS:**74-98-6 **EC Number:**200-827-9 **EU Index:**601-003-00-5 **UN:**UN1978	35% TO 45%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2: F+; R12 **EU CLP:** Annex VI, Table 3.2: Flam. Gas 1, H220; Press. Gas **OSHA HCS 2012:** Flam. Gas 1; Press. Gas; Simp. Asphyx.	NDA
Hydrocarbons, C1-4, debutanizer fraction	**CAS:**68527-19-5 **EC Number:**271-261-8 **EU Index:**649-091-00-4	20% TO 40%	NDA	**EU DSD/DPD:** Not Classified **EU CLP:** Not Classified **OSHA HCS 2012:** Not Classified	NDA
Isobutane	**CAS:**75-28-5 **EC Number:**200-857-2	15% TO 25%	Inhalation-Rat LC50 • 57 pph 15 Minute(s)	**EU DSD/DPD:** Annex VI, Table 3.2: F+; R12 **EU CLP:** Annex VI, Table 3.1: Flam. Gas. 1, H220; Press. Gas **OSHA HCS 2012:** Flam. Gas 1; Press. Gas; Simp. Asphyx.	NDA
Butane	**CAS:**106-97-8 **EC Number:**203-448-7	3% TO 8%	Inhalation-Rat LC50 • 658 g/m³ 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 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas; STOT SE 3: Narc. (Inhl); Simp. Asphyx.	NDA
1,3-Butadiene	**CAS:**106-99-0 **EC Number:**203-450-8	0% TO 0.15%	Inhalation-Rat LC50 • 128000 ppm 4 Hour(s) Ingestion/Oral-Rat LD50 • 5480 mg/kg	**EU DSD/DPD:** Annex VI, Table 3.2: F+; R12; Carc. Cat. 1; R45; Muta. Cat. 2; R46 **EU CLP:** Annex VI, Table 3.1: Flam. Gas 1, H220; Carc. 1A, H350; Muta. 1B, H340; Press. Gas **OSHA HCS 2012:** Flam Gas 1; Press. Gas; Carc. 1A; Muta. 1B;	NDA

See Section 11 for Toxicological Information.

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
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected

areas or flush them with water. Never give anything by mouth to an unconscious person. 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.

See Section 2 for Potential Health Effects.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- SMALL FIRES: Dry chemical or CO2.
  LARGE FIRES: Water spray or fog.

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
  Move containers from fire area if you can do it without risk.
  FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.
  FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.
  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: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  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: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Ventilate the area before entry. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. 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)

6.2 Environmental precautions

- Avoid run off to waterways and sewers.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Stop leak if you can do it without risk.
  If possible, turn leaking containers so that gas escapes rather than liquid.
  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.
  Isolate area until gas has dispersed.

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. Take precautionary measures against static charges. Use only non-sparking tools. All equipment used when handling the product must be grounded. Cylinders should be firmly secured to prevent falling or being knocked-over. Use explosion-proof electrical/ventilating/lighting/equipment. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container. Do not breathe gas. Avoid contact with skin, eyes or clothing. Wear appropriate protective clothing.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not store with strong oxidizers.

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	OSHA
1,3-Butadiene (106-99-0)	STELs	Not established	Not established	5 ppm STEL (see 29 CFR 1910.1051)
	TWAs	2 ppm TWA	Not established	1 ppm TWA (listed under Butadiene)
Butane (106-97-8)	STELs	1000 ppm STEL	Not established	Not established
	TWAs	Not established	800 ppm TWA; 1900 mg/m3 TWA	Not established

Propane (74-98-6)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	1000 ppm TWA; 1800 mg/m3 TWA	1000 ppm TWA; 1800 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- Respiratory protection only required when exposure limits are exceeded. In the event an exposure limit is exceeded follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Eye/Face

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

Skin/Body

- Wear protective gloves .

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with unpleasant odor.
Color	Colorless	Odor	Unpleasant odor.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	-55 F(-48.3333 C)	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	= 0.51 Water=1	Water Solubility	Moderately soluble 1 to 10 %
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	9826 mmHg (torr)	Vapor Density	1.5 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	-156 F(-104.4444 C) TCC (Tagliabue Closed Cup)	UEL	9.5 %
LEL	2.3 %	Autoignition	842 F(450 C)
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 under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Keep away from heat and flame.

10.5 Incompatible materials

- Strong oxidizers.

10.6 Hazardous decomposition products

- Burning gas will produce carbon monoxide and other dangerous products of combustion.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Propane (35% TO 45%)	74-98-6	**Acute Toxicity:** Inhalation-Rat LC50 • >800000 ppm 15 Minute(s); *Behavioral*:**General anesthetic**; *Behavioral*:**Ataxia**; *Lungs, Thorax, or Respiration*:**Respiratory depression**
Butane (3% TO 8%)	106-97-8	**Acute Toxicity:** Inhalation-Rat LC50 • 658 g/m³ 4 Hour(s)
Isobutane (15% TO 25%)	75-28-5	**Acute Toxicity:** Inhalation-Rat LC50 • 57 pph 15 Minute(s); *Behavioral*:**Tremor**; *Behavioral*:**Convulsions or effect on seizure threshold**; *Lungs, Thorax, or Respiration*:**Respiratory depression**
1,3-Butadiene (0% TO 0.15%)	106-99-0	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 5480 mg/kg; Inhalation-Rat LC50 • 128000 ppm 4 Hour(s); **Multi-dose Toxicity:** Inhalation-Mouse TCLo • 1250 ppm 6 Hour(s) 6 Week(s)-Intermittent; *Blood*:**Normocytic anemia**; *Blood*:**Changes in bone marrow not included above**; *Blood*:**Changes in erythrocyte (RBC) count**; **Mutagen:** Inhalation-Mouse • 130 ppm 5 Day(s) 6 Hour(s)-Continuous; Heritable Translocation Test • Inhalation-Mouse • 500 ppm 6 Hour(s) 5 Day(s)-Continuous; Specific locus test • Inhalation-Mouse • 20 ppm 6 Hour(s) 4 Week(s); Cytogenetic analysis • Inhalation-Rat • 1250 ppm 5 Day(s) 2 Week(s)-Intermittent; Specific locus test • Inhalation-Rat • 1250 ppm 2 Week(s)-Intermittent; **Reproductive:** Inhalation-Mouse TCLo • 1000 ppm 6 Hour(s)(6-15D preg); *Reproductive Effects:Effects on Fertility*:**Post-implantation mortality**; *Reproductive Effects:Effects on Embryo or Fetus*:**Extra embryonic structures**; *Reproductive Effects:Effects on Embryo or Fetus*:**Fetotoxicity (except death, e.g., stunted fetus)**; **Tumorigen / Carcinogen:** Inhalation-Mouse TCLo • 540.75 mg/kg 103 Week(s)-Intermittent; *Tumorigenic*:**Carcinogenic by RTECS criteria**; *Liver*:**Tumors**; *Blood*:**Lymphoma, including Hodgkin's disease**

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** • Carcinogenicity 1A **OSHA HCS 2012** • Carcinogenicity 1A

Germ Cell Mutagenicity	**EU/CLP** • Germ Cell Mutagenicity 1B **OSHA HCS 2012** • Germ Cell Mutagenicity 1B
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** • Data lacking
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.

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

Mutagenic Effects
- This material contains 1,3-butadiene, which has proven positive in mutagenicity tests.

Carcinogenic Effects
- Repeated and prolonged exposure may cause cancer.

Carcinogenic Effects				
	CAS	**OSHA**	**IARC**	**NTP**
1,3-Butadiene	106-99-0	Specifically Regulated Carcinogen	Group 1-Carcinogenic	Known Human Carcinogen

Key to abbreviations

LC = Lethal Concentration
LD = Lethal Dose
TC = Toxic 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
- Dispose of content and/or container in accordance with local, regional, national, and/or international 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	UN1075	Petroleum gases, liquefied	2.1	NDA	NDA
TDG	UN1075	PETROLEUM GASES, LIQUEFIED	2.1	NDA	NDA
IMO/IMDG	UN1075	PETROLEUM GASES, LIQUEFIED	2.1	NDA	NDA
IATA/ICAO	UN1075	Petroleum gases, liquefied	2.1	NDA	NDA

14.6 Special precautions for user
- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

Section 15 - Regulatory Information

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

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

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**EU EINECS**	**EU ELNICS**	**TSCA**
Olefins	68783-64-2	Yes	No	Yes	No	Yes
1,3-Butadiene	106-99-0	Yes	No	Yes	No	Yes
Butane	106-97-8	Yes	No	Yes	No	Yes
Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Yes	No	Yes	No	Yes
Isobutane	75-28-5	Yes	No	Yes	No	Yes
Propane	74-98-6	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	A, B1, D2A, F
• Isobutane	75-28-5	A, B1 (listed under Methyl-2 propane)
• Propane	74-98-6	A, B1
• Butane	106-97-8	A, B1
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	0.1 %
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	1 %
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Priority Substance List 2 (substance considered toxic)
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

Other Agency Information

Other

AIHA - Emergency Response Planning Guidelines - ERPG-1 Values

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	10 ppm ERPG-1
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	5 ppm STEL (See 29 CFR 1910.1051, 15 min); 0.5 ppm Action Level; 1 ppm TWA
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

Environment

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	10000 lb threshold quantity
• Isobutane	75-28-5	10000 lb threshold quantity
• Propane	74-98-6	10000 lb threshold quantity
• Butane	106-97-8	10000 lb threshold quantity
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	10 lb final RQ; 4.54 kg final RQ
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	0.1 % de minimis concentration
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

United States - California

Environment

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	carcinogen, initial date 4/1/88
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	developmental toxicity, initial date 4/16/04

• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	0.4 µg/day NSRL
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	female reproductive toxicity, initial date 4/16/04
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

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

• Olefins	68783-64-2	Not Listed
• 1,3-Butadiene	106-99-0	Not Listed
• Isobutane	75-28-5	Not Listed
• Propane	74-98-6	Not Listed
• Butane	106-97-8	Not Listed
• Hydrocarbons, C1-4, debutanizer fraction	68527-19-5	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 16 - Other Information

Last Revision Date
- 28/May/2015

Preparation Date
- 04/January/2011

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Key to abbreviations

NDA = No Data Available