




# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>Alky Feed</b>
<b>Other means of identification</b>	
<b>SDS number</b>	302-GHS
<b>Synonyms</b>	Butane, Butylene, and iso-Butane Mixture, Poly Feed.
<b>Recommended use</b>	This product is intended for use as a refinery feedstock, fuel or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer/Supplier</b>	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000 210-345-4593 CorpHSE@valero.com
<b>General Assistance</b>	210-345-4593
<b>E-Mail</b>	CorpHSE@valero.com
<b>Contact Person</b>	Industrial Hygienist
<b>Emergency Telephone</b>	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable gases	Category 1
	Gases under pressure	Liquefied gas
<b>Health hazards</b>	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1A
<b>OSHA defined hazards</b>	Simple asphyxiant	
<b>Label elements</b>		

<b>Signal word</b>	Danger
<b>Hazard statement</b>	Extremely flammable gas. Contains gas under pressure; may explode if heated. May cause genetic defects. May cause cancer.
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	If exposed or concerned: Get medical advice/attention. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
<b>Storage</b>	Store locked up. Protect from sunlight. Store in a well-ventilated place.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.

## 3. Composition/information on ingredients

### Mixtures

<b>Chemical name</b>	<b>CAS number</b>	<b>%</b>
Isobutane	75-28-5	40 - 60
1-Butene	25167-67-3	30 - 45

Alky Feed

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Prepared by 3E Company

Butane	106-97-8	13 - 25
Isobutylene	115-11-7	2 - 4
Propane	74-98-6	0 - 3
1,3-butadiene	106-99-0	0 - 1

#### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.
<b>Skin contact</b>	Wash frost-bitten areas with plenty of water. Do not remove clothing. Get medical attention immediately.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>Ingestion</b>	Ingestion is not a typical route of exposure for gases or liquefied gases.
<b>Most important symptoms/effects, acute and delayed</b>	Narcosis. Behavioral changes. Decrease in motor functions.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.

#### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Dry chemical, CO <sub>2</sub> , water spray, fog, or foam.
<b>Unsuitable extinguishing media</b>	Not available.
<b>Specific hazards arising from the chemical</b>	Extremely flammable gas. During fire, gases hazardous to health may be formed. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.  Move container from fire area if it can be done without risk.  Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

#### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away.  Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8).
<b>Methods and materials for containment and cleaning up</b>	Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel.
<b>Environmental precautions</b>	Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

#### 7. Handling and storage

<b>Precautions for safe handling</b>	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use only with adequate ventilation.
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**Conditions for safe storage, including any incompatibilities**

Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

**8. Exposure controls/personal protection****Occupational exposure limits****US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Components	Type	Value
1,3-butadiene (CAS 106-99-0)	STEL	5 ppm
	TWA	1 ppm

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m <sup>3</sup>
		1000 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value
1,3-butadiene (CAS 106-99-0)	TWA	2 ppm
1-Butene (CAS 25167-67-3)	TWA	250 ppm
Butane (CAS 106-97-8)	STEL	1000 ppm
Isobutane (CAS 75-28-5)	STEL	1000 ppm
Isobutylene (CAS 115-11-7)	TWA	250 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m <sup>3</sup>
		800 ppm
Isobutane (CAS 75-28-5)	TWA	1900 mg/m <sup>3</sup>
		800 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m <sup>3</sup>
		1000 ppm

**Biological limit values****ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
1,3-butadiene (CAS 106-99-0)	2.5 mg/l	1,2-Dihydroxy-4-(N-acetylcysteinyl)-butane	Urine	*
	2.5 pmol/g	Mixture of N-1- and N-2-(hydroxybutenyl)valine hemoglobin (Hb) adducts	Hemoglobin in blood	*

\* - For sampling details, please see the source document.

**Appropriate engineering controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear approved safety glasses or goggles.

**Skin protection**

**Hand protection** Wear appropriate chemical resistant gloves.

**Other**

Wear protective clothing appropriate for the risk of exposure.

**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**

Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

**9. Physical and chemical properties**

<b>Appearance</b>	Colorless liquefied gas.
<b>Physical state</b>	Gas.
<b>Form</b>	Not available.
<b>Color</b>	Colorless
<b>Odor</b>	Gasoline-like.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	-274 °F (-170 °C) Weighted average
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	-117.7 °F (-83.2 °C) Closed Cup Lowest value (iso-Butane)
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	1 %
<b>Flammability limit - upper (%)</b>	9.5 %
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	2 Air = 1
<b>Relative density</b>	0.57 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble in the cold water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	724.73 °F (384.85 °C) Lowest value (Butylene)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Molecular formula</b>	Mixture, not applicable
<b>VOC (Weight %)</b>	100 %

**10. Stability and reactivity**

<b>Reactivity</b>	Not available.
<b>Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>Possibility of hazardous reactions</b>	Polymerization will not occur.
<b>Conditions to avoid</b>	In a fire or if heated, a pressure increase will occur and the container may burst or explode.
<b>Incompatible materials</b>	Oxidizing agents. Reducing agents. Acids. Alkalis.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

**11. Toxicological information****Information on likely routes of exposure**

<b>Ingestion</b>	Not likely, due to the form of the product.
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**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 can cause damage (frostbite) due to rapid evaporative cooling.

**Eye contact** Contact with liquefied gas may cause frostbite.

**Symptoms related to the physical, chemical and toxicological characteristics** Narcosis. Behavioral changes. Decrease in motor functions.

**Information on toxicological effects**

**Acute toxicity** Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

Components	Species	Test Results
1,3-butadiene (CAS 106-99-0)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	285 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	5.48 g/kg
Butane (CAS 106-97-8)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours
Isobutylene (CAS 115-11-7)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	620 mg/l, 4 Hours
Propane (CAS 74-98-6)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	> 1442 mg/l, 15 Minutes
<b>Skin corrosion/irritation</b>	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.	
<b>Serious eye damage/eye irritation</b>	Direct contact with liquefied gas may cause eye damage from frostbite.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	Based on available data, the classification criteria are not met.	
<b>Skin sensitization</b>	Not a skin sensitizer.	
<b>Germ cell mutagenicity</b>	May cause genetic defects.	
<b>Carcinogenicity</b>	May cause cancer.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
1,3-butadiene (CAS 106-99-0)	1 Carcinogenic to humans.	
<b>NTP Report on Carcinogens</b>		
1,3-butadiene (CAS 106-99-0)	Known To Be Human Carcinogen.	
<b>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		
1,3-butadiene (CAS 106-99-0)	Cancer	
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met.	
<b>Specific target organ toxicity - single exposure</b>	Based on available data, the classification criteria are not met.	
<b>Specific target organ toxicity - repeated exposure</b>	Based on available data, the classification criteria are not met.	
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met.	

**Chronic effects** May cause central nervous system effects.

## 12. Ecological information

**Ecotoxicity** Not expected to be harmful to aquatic organisms.

**Persistence and degradability** Not available.

**Bioaccumulative potential** Not available.

### Partition coefficient n-octanol / water (log Kow)

1,3-butadiene (CAS 106-99-0)	1.99
Butane (CAS 106-97-8)	2.89
Isobutane (CAS 75-28-5)	2.76
Isobutylene (CAS 115-11-7)	2.34
Propane (CAS 74-98-6)	2.36

**Mobility in soil** Not available.

**Other adverse effects** Not available.

## 13. Disposal considerations

**Disposal instructions** Dispose in accordance with all applicable regulations. Empty containers may contain product residues. Do not puncture or incinerate even when empty. This material and/or its container must be disposed of as hazardous waste. Return the empty cylinder to the supplier.

**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** Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum gases, liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Packing group</b>	Not applicable.
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	T50
<b>Packaging exceptions</b>	306
<b>Packaging non bulk</b>	304
<b>Packaging bulk</b>	314, 315

### IATA

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum gases, liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	No
<b>ERG Code</b>	10L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### IMDG

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	PETROLEUM GASES, LIQUEFIED
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>EmS</b>	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. This product is a compressed or liquefied gas and when transported in bulk is covered under IGC code.

## 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)

1,3-butadiene (CAS 106-99-0)	Cancer Eye irritation Respiratory tract irritation Central nervous system Flammability
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### CERCLA Hazardous Substance List (40 CFR 302.4)

1,3-butadiene (CAS 106-99-0)	LISTED
Butane (CAS 106-97-8)	LISTED
Isobutane (CAS 75-28-5)	LISTED
Isobutylene (CAS 115-11-7)	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

Not listed.

**SARA 311/312 Hazardous chemical** Yes

### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
1,3-butadiene	106-99-0	0 - 1

### Other federal regulations

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

1,3-butadiene (CAS 106-99-0)

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

1,3-butadiene (CAS 106-99-0)  
 Butane (CAS 106-97-8)  
 Isobutane (CAS 75-28-5)  
 Isobutylene (CAS 115-11-7)  
 Propane (CAS 74-98-6)

**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

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

WARNING: Byproducts of the combustion of propane contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

California requires all "persons in the course of doing business" whose products are sold in California to comply with Proposition 65 (Cal. Health and Safety Code Sections 25249.6 et seq.). Accordingly, resellers of this product in California shall comply with Proposition 65, including the provision of any necessary warnings for exposure to chemicals listed by the State of California: [http://oehha.ca.gov/prop65/prop65\\_list/files/P65single111811.pdf](http://oehha.ca.gov/prop65/prop65_list/files/P65single111811.pdf)

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

**US. Massachusetts RTK - Substance List**

1,3-butadiene (CAS 106-99-0)  
 Butane (CAS 106-97-8)  
 Isobutane (CAS 75-28-5)  
 Isobutylene (CAS 115-11-7)  
 Propane (CAS 74-98-6)

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

1,3-butadiene (CAS 106-99-0)  
 Butane (CAS 106-97-8)  
 Isobutane (CAS 75-28-5)  
 Isobutylene (CAS 115-11-7)  
 Propane (CAS 74-98-6)

**US. Pennsylvania Worker and Community Right-to-Know Law**

1,3-butadiene (CAS 106-99-0)  
 Butane (CAS 106-97-8)  
 Isobutane (CAS 75-28-5)  
 Isobutylene (CAS 115-11-7)  
 Propane (CAS 74-98-6)

**US. Rhode Island RTK**

1,3-butadiene (CAS 106-99-0)  
 Butane (CAS 106-97-8)  
 Isobutane (CAS 75-28-5)  
 Isobutylene (CAS 115-11-7)  
 Propane (CAS 74-98-6)

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

1,3-butadiene (CAS 106-99-0)

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

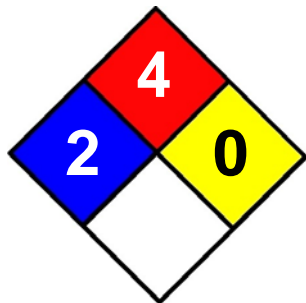
\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).



## 16. Other information, including date of preparation or last revision

**Issue date** 27-June-2013  
**Revision date** 23-May-2014  
**Version #** 02  
**Further information** HMIS® is a registered trade and service mark of the NPCA.  
**NFPA Ratings**



### References

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

### Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.