

# SAFETY DATA SHEET

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Name of the substance** Propane Propylene/Butane Butylene  
**Identification number** -  
**Registration number** -  
**Synonyms** Olefins  
**SDS number** 2025  
**Issue date** 27-July-2011  
**Version number** 05  
**Revision date** 24-July-2013  
**Supersedes date** 17-August-2012

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

**Identified uses** Refinery feedstock.  
**Uses advised against** None known.

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

**Company name** Valero Energy Ltd  
**Address** 1 Westferry Circus  
Canary Wharf  
London E14 4HA  
UK  
**Telephone** 01/210 345 4593 (General information; US)  
**e-mail** CorpHSE@valero.com  
**Contact person** Industrial Hygienist

**1.4. Emergency telephone number** 0044/(0)18 65 407333

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according to Directive 67/548/EEC or 1999/45/EC as amended**

**Classification** F+;R12, Carc. Cat. 1;R45, Muta. Cat. 2;R46

**Classification according to Regulation (EC) No 1272/2008 as amended**

#### Physical hazards

Flammable gases	Category 1	H220 - Extremely flammable gas.
Gases under pressure	Compressed gas	H280 - Contains gas under pressure; may explode if heated.

#### Health hazards

Germ cell mutagenicity	Category 1B	H340 - May cause genetic defects.
Carcinogenicity	Category 1A	

#### Hazard summary

**Physical hazards** Extremely flammable.  
**Health hazards** May cause cancer. May cause heritable genetic damage. May cause harm to the unborn child. Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.  
**Environmental hazards** Not classified for hazards to the environment.  
**Specific hazards** Not available.  
**Main symptoms** Not available.

### 2.2. Label elements

**Label according to Regulation (EC) No. 1272/2008 as amended**

**Contains:** Distillates (petroleum), C6-rich, Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed  
**Identification number** -

## Hazard pictograms



## Signal word

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.  
P281 - Use personal protective equipment as required.  
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

### Response

P308 + P313 - IF exposed or concerned: Get medical advice/attention.

### Storage

P410 + P403 - Protect from sunlight. Store in a well-ventilated place.

### Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

## Supplemental label information

Not applicable.

## 2.3. Other hazards

Static accumulator - Static accumulating flammable materials can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite material and vapor may cause flash fire (or explosion).

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed	<100	68477-83-8 270-765-5	-	649-067-00-3	
<b>Classification:</b>	<b>DSD:</b>	F+;R12, Carc. Cat. 1;R45, Muta. Cat. 2;R46			
	<b>CLP:</b>	Flam. Gas 1;H220, Press. Gas;H280, Muta. 1B;H340, Carc. 1A;H350			
Distillates (petroleum), C6-rich	0,1 - 0,99	93165-19-6 296-903-4	-	649-388-00-9	
<b>Classification:</b>	<b>DSD:</b>	F+;R12, Carc. Cat. 2;R45, Muta. Cat. 2;R46, Repr. Cat. 3;R62-63, Xn;R65, Xi;R38, R67, N;R51/53			
	<b>CLP:</b>	Flam. Liq. 1;H224, Asp. Tox. 1;H304, Skin Irrit. 2;H315, STOT SE 3;H336, Muta. 1B;H340, Carc. 1B;H350, Repr. 2;H361fd, Aquatic Chronic 2;H411			

## SECTION 4: First aid measures

#### General information

Not available.

#### 4.1. Description of first aid measures

##### Inhalation

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

##### Skin contact

Wash frost-bitten areas with plenty of water. Do not remove clothing. Get medical attention immediately.

##### Eye contact

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.

##### Ingestion

Ingestion is not a typical route of exposure for gases or liquefied gases.

#### 4.2. Most important symptoms and effects, both acute and delayed

Contact with liquefied gas may cause frostbite.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

#### General fire hazards

Extremely flammable gas. Containers may explode when heated.

### 5.1. Extinguishing media

**Suitable extinguishing media** Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media** Do not use a solid water stream as it may scatter and spread fire.

### 5.2. Special hazards arising from the substance or mixture

Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Special fire fighting procedures** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapours may form explosive air mixtures even at room temperature. Prevent buildup of vapours or gasses to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for personal protective equipment.

**For emergency responders** Keep unnecessary personnel away. Wear protective clothing as described in Section 8 of this safety data sheet.

### 6.2. Environmental precautions

Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent material from entering drains, sewers or low lying areas. See section 13 for waste disposal information.

### 6.3. Methods and material for containment and cleaning up

Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel.

### 6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

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.

### 7.2. 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.

### 7.3. Specific end use(s)

Refinery feedstock.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Occupational exposure limits** No exposure limits noted for ingredient(s).

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

**Recommended monitoring procedures** Not available.

**Derived no-effect level (DNEL)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

### 8.2. Exposure controls

**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

<b>General information</b>	Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
<b>Eye/face protection</b>	Wear approved safety glasses or goggles.
<b>Skin protection</b>	
- <b>Hand protection</b>	Wear appropriate chemical resistant gloves.
- <b>Other</b>	Wear protective clothing appropriate for the risk of exposure.
<b>Respiratory protection</b>	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.
<b>Thermal hazards</b>	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
<b>Hygiene measures</b>	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.
<b>Environmental exposure controls</b>	Not available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Colorless liquefied gas.
<b>Physical state</b>	Liquid.
<b>Form</b>	Compressed liquefied gas.
<b>Colour</b>	Colorless
<b>Odour</b>	Hydrocarbon.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	-108,0 °C (-162,4 °F)
<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>	1,6 %
<b>Flammability limit - upper (%)</b>	12 %
<b>Vapour pressure</b>	Not available.
<b>Vapour density</b>	Not available.
<b>Relative density</b>	0,56 (15°C)
<b>Solubility(ies)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidizing properties</b>	Not available.
<b>9.2. Other information</b>	No relevant additional information available.

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not available.
<b>10.2. Chemical stability</b>	Stable under normal temperature conditions and recommended use.
<b>10.3. Possibility of hazardous reactions</b>	Polymerization will not occur.

<b>10.4. Conditions to avoid</b>	In a fire or if heated, a pressure increase will occur and the container may burst or explode.
<b>10.5. Incompatible materials</b>	Oxidizing agents. Reducing Agents. Acids. Alkalies.
<b>10.6. Hazardous decomposition products</b>	None known.

## SECTION 11: Toxicological information

<b>General information</b>	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
<b>Information on likely routes of exposure</b>	
<b>Ingestion</b>	Not applicable.
<b>Inhalation</b>	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
<b>Skin contact</b>	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
<b>Eye contact</b>	Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.
<b>Symptoms</b>	Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn").
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn").
<b>Skin corrosion/irritation</b>	Not assigned.
<b>Serious eye damage/eye irritation</b>	Not assigned.
<b>Respiratory sensitisation</b>	Not assigned.
<b>Skin sensitisation</b>	Not available.
<b>Germ cell mutagenicity</b>	May cause genetic defects.
<b>Carcinogenicity</b>	May cause cancer.
<b>Reproductive toxicity</b>	The product contains a small amount of substance that is suspected of damaging fertility or the unborn child.
<b>Specific target organ toxicity - single exposure</b>	Not assigned.
<b>Specific target organ toxicity - repeated exposure</b>	Not assigned.
<b>Aspiration hazard</b>	Not applicable.
<b>Mixture versus substance information</b>	Not available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

<b>12.1. Toxicity</b>	The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.
<b>12.2. Persistence and degradability</b>	Not available.
<b>12.3. Bioaccumulative potential</b>	Not available.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	Not available.
<b>12.5. Results of PBT and vPvB assessment</b>	Not a PBT or vPvB substance or mixture.
<b>12.6. Other adverse effects</b>	Not available.

## SECTION 13: Disposal considerations

<b>13.1. Waste treatment methods</b>	
<b>Residual waste</b>	Dispose of in accordance with local regulations.
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied.
<b>EU waste code</b>	16 05 04*

**Disposal methods/information** Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN1964
<b>14.2. UN proper shipping name</b>	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
<b>14.3. Transport hazard class(es)</b>	2.1
<b>Subsidiary class(es)</b>	-
<b>14.4. Packing group</b>	Not available.
<b>14.5. Environmental hazards</b>	No
<b>Tunnel restriction code</b>	Not available.
<b>Labels required</b>	2.1
<b>14.6. Special precautions for user</b>	Not available.

### RID

<b>14.1. UN number</b>	UN1964
<b>14.2. UN proper shipping name</b>	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
<b>14.3. Transport hazard class(es)</b>	2.1
<b>Subsidiary class(es)</b>	-
<b>14.4. Packing group</b>	Not available.
<b>14.5. Environmental hazards</b>	No
<b>Labels required</b>	2.1 (+13)
<b>14.6. Special precautions for user</b>	Not available.

### ADN

<b>14.1. UN number</b>	UN1964
<b>14.2. UN proper shipping name</b>	Hydrocarbon Gas Compressed, N.o.s.
<b>14.3. Transport hazard class(es)</b>	Not available.
<b>Subsidiary class(es)</b>	-
<b>14.4. Packing group</b>	Not available.
<b>14.5. Environmental hazards</b>	No
<b>Labels required</b>	2.1
<b>14.6. Special precautions for user</b>	Not available.

### IATA

<b>14.1. UN number</b>	UN1964
<b>14.2. UN proper shipping name</b>	Hydrocarbon gas mixture, compressed, n.o.s.
<b>14.3. Transport hazard class(es)</b>	2.1
<b>Subsidiary class(es)</b>	-
<b>14.4. Packing group</b>	Not available.
<b>14.5. Environmental hazards</b>	Not available.
<b>Labels required</b>	Not available.
<b>ERG code</b>	10L
<b>14.6. Special precautions for user</b>	Not available.

### IMDG

<b>14.1. UN number</b>	UN1964
<b>14.2. UN proper shipping name</b>	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
<b>14.3. Transport hazard class(es)</b>	2.1
<b>Subsidiary class(es)</b>	-
<b>14.4. Packing group</b>	Not available.
<b>14.5. Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>Labels required</b>	Not available.
<b>EmS</b>	F-D, S-U

<b>14.6. Special precautions for user</b>	Not available.
<b>14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	This product is a compressed or liquefied gas and when transported in bulk is covered under IGC code.

## SECTION 15: Regulatory information

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

#### EU regulations

- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I**  
Not listed.
- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II**  
Not listed.
- Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**  
Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended**  
Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended**  
Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended**  
Not listed.
- Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.
- Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**  
Not listed.
- Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA**  
Not listed.

#### Authorisations

- Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended**  
Not listed.

#### Restrictions on use

- Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**  
Distillates (petroleum), C6-rich (CAS 93165-19-6)
- Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**  
Not regulated.
- Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding**  
Distillates (petroleum), C6-rich (CAS 93165-19-6)  
Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed (CAS 68477-83-8)

#### Other EU regulations

- Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances**  
Not regulated.
- Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**  
Distillates (petroleum), C6-rich (CAS 93165-19-6)  
Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed (CAS 68477-83-8)
- Directive 94/33/EC on the protection of young people at work**  
Distillates (petroleum), C6-rich (CAS 93165-19-6)  
Gases (petroleum), C3-5 olefinic-paraffinic alkylation feed (CAS 68477-83-8)

**National regulations** Not available.

**15.2. Chemical safety assessment** Chemical Safety Assessment has been carried out.  
Annex for Exposure Scenarios is not required for this material.

## SECTION 16: Other information

<b>List of abbreviations</b>	DSD: Directive 67/548/EEC. CLP: Regulation No. 1272/2008. DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.
<b>References</b>	Not available.
<b>Information on evaluation method leading to the classification of mixture</b>	The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.
<b>Full text of any statements or R-phrases and H-statements under Sections 2 to 15</b>	R12 Extremely flammable. R38 Irritating to skin. R45 May cause cancer. R46 May cause heritable genetic damage. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R61 May cause harm to the unborn child. R62 Possible risk of impaired fertility. R63 Possible risk of harm to the unborn child. R65 Harmful: may cause lung damage if swallowed. R67 Vapours may cause drowsiness and dizziness. H220 Extremely flammable gas. H224 Extremely flammable liquid and vapour. H280 Contains gas under pressure; may explode if heated. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H340 May cause genetic defects. H350 May cause cancer. H361fd Suspected of damaging fertility. Suspected of damaging the unborn child. H411 Toxic to aquatic life with long lasting effects.
<b>This SDS contains revisions in the following section(s):</b>	This safety data sheet contains revisions in the following section(s): 2, 3, 7, 11, 12.
<b>Training information</b>	Not available.
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