



AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2015/830

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

1.1

Product information

Product Name : AlphaPlus® 1-Butene

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
1-Butene	106-98-9 203-449-2 601-012-00-4	Qatar Chemical Company LTD (Q-Chem) 01-2119456615-34-0004

1.2

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

Relevant Identified Uses : Manufacture
Supported Manufacture and use as an intermediate

1.3

Details of the supplier of the safety data sheet

Company : Qatar Chemical Company LTD (QChem)
Amwal Tower, Omar Al Mukhtar St,
Al-Dafna (Zone 61)
PO Box 24646
Doha, Qatar

SDS Requests: (+974) 4484-7110
Technical Information: (+974) 4477-0047
Responsible Party: Product Safety Group
Email: MSDSInquiry@qchem.com.qa

Local : Muntajat B.V. (MBV OR)
19th Floor, Tower E, WTC The Hague
Prinses Margrietplantsoen 78-A, 2595 BR
The Hague, the Netherlands.
Tel: +31702055630
Email: info.netherlands@muntajatbv.com

1.4

Emergency telephone:

Health:
866.442.9628 (North America)

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com

SECTION 2: Hazards identification**2.1****Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Flammable gases, Category 1

H220:

Extremely flammable gas.

Gases under pressure, Liquefied gas

H280:

Contains gas under pressure; may explode if heated.

2.2**Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal Word : Danger

Hazard Statements :

H220

Extremely flammable gas.

H280

Contains gas under pressure; may explode if heated.

Precautionary Statements :

Prevention:

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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:

P410 + P403

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

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

SECTION 3: Composition/information on ingredients**3.1 - 3.2****Substance or Mixture**

Synonyms : Ethylethylene
1-Butylene
Alpha-butene
Butene-1 (C4)
Alpha-Butylene
C4H8

Molecular formula : C4H8

Hazardous ingredients

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
1-Butene	106-98-9 203-449-2 601-012-00-4	Flam. Gas 1; H220 Press. Gas Press. Gas Liquefied gas; H280	99 - 99,99
n-Butane	106-97-8 203-448-7 601-004-00-0	Flam. Gas 1; H220 Press. Gas Liquefied gas; H280 Press. Gas Compr. Gas; H280	0 - 1

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures**4.1****Description of first-aid measures**

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point : -80°C (-112°F)

Autoignition temperature : 383,89°C (723,00°F)

5.1**Extinguishing media**

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

5.2**Special hazards arising from the substance or mixture**

Specific hazards during fire fighting : Standard procedure for chemical fires.

5.3**Advice for firefighters**

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products : Carbon oxides.

SECTION 6: Accidental release measures**6.1****Personal precautions, protective equipment and emergency procedures**

Personal precautions : Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2**Environmental precautions**

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.4**Reference to other sections**

Reference to other sections : For personal protection see section 8. For disposal considerations see section 13.

SECTION 7: Handling and storage**7.1****Precautions for safe handling
Handling**

Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

7.2**Conditions for safe storage, including any incompatibilities****Storage**

Requirements for storage areas and containers : Prevent unauthorized access. No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**8.1****Control parameters
Ingredients with workplace control parameters****SI**

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
n-Butane	SI OEL	MV	1.000 ppm, 2.400 mg/m ³	
	SI OEL	KTV	4.000 ppm, 9.600 mg/m ³	

RU

Компоненты	Основа	Величина	Параметры контроля	Заметка
1-бутен	RU OEL	ПДК	100 mg/m ³	4, пары и/или газы
	RU OEL	ПДК разовая	300 mg/m ³	4, пары и/или газы
	RU OEL	ПДК	100 mg/m ³	4, пары и/или газы
	RU OEL	ПДК разовая	300 mg/m ³	4, пары и/или газы
н-бутан	RU OEL	ПДК	300 mg/m ³	4, пары и/или газы
	RU OEL	ПДК разовая	900 mg/m ³	4, пары и/или газы
	RU OEL	ПДК	300 mg/m ³	4, пары и/или газы
	RU OEL	ПДК разовая	900 mg/m ³	4, пары и/или газы

4 4 класс - умеренно опасные

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
1-Butene	PT OEL	VLE-MP	250 ppm,	
n-Butane	PT OEL	VLE_CD	1.000 ppm,	

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
n-Butane	PL NDS	NDS	1.900 mg/m ³	
	PL NDS	NDSch	3.000 mg/m ³	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
n-Butane	FOR-2011-12-06-1358	GV	250 ppm, 600 mg/m ³	

МК

Съставки	Основа	Стойност	Параметри на	Бележка
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SDS Number:100000068454

5/16

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

			контрол	
n-Butane	MK OEL	MV	1.000 ppm, 2.400 mg/m3	

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
n-Butane	LV OEL	AER 8 st	300 mg/m3	

IS

Komponenter	Grunnlag	Verdi	Kontrollparametrer	Nota
n-Butane	IS OEL	TWA	500 ppm, 1.200 mg/m3	

IE

Components	Basis	Value	Control parameters	Note
1-Butene	IE OEL	OELV - 8 hrs (TWA)	250 ppm,	
n-Butane	IE OEL	OELV - 15 min (STEL)	1.000 ppm,	

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
n-Butane	HU OEL	AK-érték	2.350 mg/m3	
	HU OEL	CK-érték	9.400 mg/m3	

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
n-Butane	HR OEL	GVI	600 ppm, 1.450 mg/m3	
	HR OEL	KGVI	750 ppm, 1.810 mg/m3	
	HR OEL	GVI	10 ppm, 22 mg/m3	1, 2, T, F+,

- 1 Karc. kat. 1: tvaru za koje je dokazano da su karcinogene za ljude
 2 Muta. kat. 2: tvaru koje su vjerojatno mutagene za ljude
 F+ Vrlo lako zapaljivo
 T Otrovno

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
n-Butane	GR OEL	TWA	1.000 ppm, 2.350 mg/m3	

GB

Components	Basis	Value	Control parameters	Note
n-Butane	GB EH40	TWA	600 ppm, 1.450 mg/m3	Carc,
	GB EH40	STEL	750 ppm, 1.810 mg/m3	Carc,

Carc Capable of causing cancer and/or heritable genetic damage.

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
n-Butane	FR VLE	VME	800 ppm, 1.900 mg/m3	Valeurs limites indicatives,

Valeurs limites Valeurs limites indicatives
 indicatives

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
n-Butane	FI OEL	HTP-arvot 8h	800 ppm, 1.900 mg/m3	Liite 4,
	FI OEL	HTP-arvot 15 min	1.000 ppm, 2.400 mg/m3	Liite 4,

Liite 4 Happea syrjäyttämällä tukehduttavat kaasut

ES

Componentes	Base	Valor	Parámetros de control	Nota
1-Butene	ES VLA	VLA-ED	1.000 ppm,	gas
n-Butane	ES VLA	VLA-ED	1.000 ppm,	gas

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
n-Butane	EE OEL	Piirnorm	800 ppm, 1.500 mg/m3	

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
n-Butane	DK OEL	GV	500 ppm, 1.200 mg/m3	

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
n-Butane	DE TRGS 900	AGW	1.000 ppm, 2.400 mg/m3	

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende	Bemerkung
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SDS Number:100000068454

6/16

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

			Parameter	
n-Butane	CH SUVA	MAK-Wert	800 ppm, 1.900 mg/m3	
	CH SUVA	MAK-Wert	800 ppm, 1.900 mg/m3	
	CH SUVA	KZGW	3.200 ppm, 7.600 mg/m3	

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
n-Butane	BG OEL	TWA	1.900 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
1-Butene	BE OEL	TGG 8 hr	250 ppm, 583 mg/m3	
n-Butane	BE OEL	TGG 8 hr	1.000 ppm,	
	BE OEL	TGG 15 min	980 ppm, 2.370 mg/m3	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
n-Butane	AT OEL	MAK-TMW	800 ppm, 1.900 mg/m3	
	AT OEL	MAK-KZW	1.600 ppm, 3.800 mg/m3	

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Chronic effects, Local effects
Value: 1530 mg/m3

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Chronic effects, Systemic effects
Value: 769 mg/m3

8.2**Exposure controls
Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

- Eye protection : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**9.1****Information on basic physical and chemical properties****Appearance**

- Form : Liquefied gas, Gases under pressure
- Physical state : Gaseous
- Color : Colorless

Safety data

- Flash point : -80°C (-112°F)
- Lower explosion limit : 1,6 %(V)
- Upper explosion limit : 9,3 %(V)
- Oxidizing properties : no
- Autoignition temperature : 383,89°C (723,00°F)
- Molecular formula : C4H8
- Molecular weight : 56,12 g/mol
- pH : Not applicable
- Freezing point : -185°C (-301°F)
- Pour point : No data available
- Boiling point/boiling range : -6,26°C (20,73°F)
- Vapor pressure : 1.895,00 MMHG
at 20°C (68°F)
- Relative density : 0,6
at 15,6 °C (60,1 °F)
- Density : 600,3 g/l

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

Water solubility	: Soluble in hydrocarbon solvents; insoluble in water.
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 1,93 (Air = 1.0)
Evaporation rate	: No data available
Percent volatile	: > 99 %

SECTION 10: Stability and reactivity**10.1**

Reactivity : Stable at normal ambient temperature and pressure.

10.2

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3**Possibility of hazardous reactions**

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4

Conditions to avoid : Heat, sparks, fire, and oxidizing agents.
Heat, flames and sparks.

10.5

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6

Hazardous decomposition products : Carbon oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**11.1****Information on toxicological effects**

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

- AlphaPlus® 1-Butene**
Acute oral toxicity : Negligible or unlikely exposure pathways
- AlphaPlus® 1-Butene**
Acute inhalation toxicity : LC50: > 10000 ppm
Exposure time: 4 h
Species: Rat
Test atmosphere: vapor
Method: OECD Test Guideline 403
Information given is based on data obtained from similar substances.
- AlphaPlus® 1-Butene**
Acute dermal toxicity : Negligible or unlikely exposure pathways
- AlphaPlus® 1-Butene**
Skin irritation : No skin irritation. Rapid evaporation of the liquid may cause frostbite.
- AlphaPlus® 1-Butene**
Eye irritation : No eye irritation. Contact with liquid or refrigerated gas can cause cold burns and frostbite.
- AlphaPlus® 1-Butene**
Sensitization : No data available.
- Repeated dose toxicity**
- 1-Butene : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 500, 2000, 8000 ppm
Exposure time: 28 d
Number of exposures: 6 hr/d, 7 d/wk
NOEL: 8000 ppm
Method: OECD Guideline 422
No adverse effect has been observed in chronic toxicity tests.
- n-Butane : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 1017, 4489 ppm
Exposure time: 90 day
Number of exposures: 6 hr/d, 5 d/wk
NOEL: 4489 ppm
- Genotoxicity in vitro**
- 1-Butene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative
- n-Butane : Test Type: Ames test
Result: negative

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

Genotoxicity in vivo

1-Butene : Test Type: Micronucleus test
Species: Mouse
Dose: 1000, 3260, 10000 ppm
Method: Mutagenicity (micronucleus test)
Result: negative

Carcinogenicity

1-Butene : Species: Rat
Sex: male
Dose: 0, 500, 2000, 8000 ppm
Exposure time: 2 years
Number of exposures: 6 hr/d, 5 d/wk
Remarks: increased incidence of thyroid tumors, Information given is based on data obtained from similar substances.

Species: Rat
Sex: female
Dose: 0, 500, 2000, 8000 ppm
Exposure time: 2 years
Number of exposures: 6 hr/d, 5 d/wk
Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Species: Mouse
Sex: male
Dose: 0, 500, 2000, 8000 ppm
Exposure time: 2 years
Number of exposures: 6 hr/d, 5 d/wk
Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Species: Mouse
Sex: female
Dose: 0, 500, 2000, 8000 ppm
Exposure time: 2 years
Number of exposures: 6 hr/d, 5 d/wk
Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Reproductive toxicity

1-Butene : Species: Rat
Sex: male and female
Application Route: Inhalation
Dose: 0, 500, 2000, 8000 ppm
Method: OECD Guideline 422
NOAEL Parent: 8000 ppm
NOAEL F1: 8000 ppm

CMR effects

1-Butene : Carcinogenicity: Weight of evidence does not support classification as a carcinogen
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

fetal development.
 Reproductive toxicity: Animal testing did not show any effects on fertility.

AlphaPlus® 1-Butene
Further information : No data available.

SECTION 12: Ecological information**12.1****Toxicity****Toxicity to fish**

1-Butene : No data available

Toxicity to daphnia and other aquatic invertebrates

1-Butene : No data available

Toxicity to algae

1-Butene : No data available

12.2**Persistence and degradability**

Biodegradability : This material is expected to be readily biodegradable.

12.3**Bioaccumulative potential**

Elimination information (persistence and degradability)

Bioaccumulation

1-Butene : Bioconcentration factor (BCF): 17,8
 Method: QSAR modeled data
 This material is not expected to bioaccumulate.

12.4**Mobility in soil****Mobility**

1-Butene : Medium: Air
 Method: Calculation, Mackay Level I Fugacity Model

: Medium: Water
 Method: Calculation, Mackay Level I Fugacity Model

12.5**Results of PBT and vPvB assessment**

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

0.1% or higher.

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6**Other adverse effects**

Additional ecological information : No data available

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

1-Butene : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard

1-Butene : This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations**13.1****Waste treatment methods**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information**14.1 - 14.7****Transport information**

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)UN1012, BUTYLENE, 2.1
NON- ODORIZED**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**UN1012, BUTYLENE, 2.1, (-80°C)
NON- ODORIZED**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**UN1012, BUTYLENE, 2.1
NON- ODORIZED**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**UN1012, 1-BUTYLENE, 2.1, (B/D)
NON- ODORIZED**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**UN1012, 1-BUTYLENE, 2.1
NON- ODORIZED**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**UN1012, 1-BUTYLENE, 2.1
NON- ODORIZED

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

SECTION 15: Regulatory information**15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture
National legislation**

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2**Chemical Safety Assessment**

Components	: but-1-ene	A Chemical Safety Assessment	203-449-2
		has been carried out for this	
		substance.	

Major Accident Hazard Legislation	: ZEU_SEVES3 Update: FLAMMABLE GASES P2 Quantity 1: 10 t
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AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

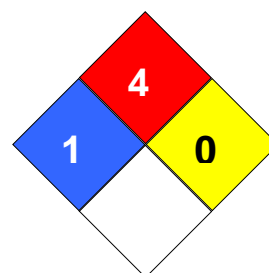
Quantity 2: 50 t

Notification status

Europe REACH	:	This product is in full compliance according to REACH regulation 1907/2006/EC.
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
Fire Hazard: 4
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : QCHEM019

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances	NFPA	National Fire Protection Agency

AlphaPlus® 1-Butene

Version 3.0

Revision Date 2020-09-16

	List		
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Full text of H-Statements referred to under sections 2 and 3.

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.