Isobutane (Pure Grade)

Version 1.3 Revision Date 2011-02-18

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name	:	Isobutane (Pure Grade)
Material	:	1012533, 1012525, 1030036, 1020532, 1020529, 1020530, 1020531

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

MSDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:msds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification (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.

Classification (67/548/EEC, 1999/45/EC)

Extremely flammable	R12: Extremely flammable.

Label elements

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/sparks/open flames/hot surfaces. - No smoking.
	Response:	
	P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	P381	Eliminate all ignition sources if safe to do so.
	Storage:	
	P410 + P403	Protect from sunlight. Store in a well-ventilated place.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Methylpropane, ISO
2-methylpropane
raw material for pp
IC4
IsoC4
Isobutane (Instrument Grade)

Molecular formula : C4H10

Mixtures

Hazardous ingredients

Chemical Name	CAS-No. EINECS-No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Isobutane	75-28-5 200-857-2	F+; R12 F+; R12	Flam. Gas 1; H220 Press. Gas H280	99 - 100

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

4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	:	Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.
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. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

5. FIRE-FIGHTING MEASURES

Flash point	:	-83 °C (-117 °F) estimated
Autoignition temperature	:	460 °C (860 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting 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 an open flame or any other 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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment. 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.
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.

7. HANDLING AND STORAGE

Handling

Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. 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 an open flame or any other 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.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

LV

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

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
n-Butane	PL NDS	NDS	1.900 mg/m3	
	PL NDS	NDSch	3.000 mg/m3	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Isobutane	PT OEL	VLE-MP	1.000 ppm,	
n-Butane	PT OEL	VLE-MP	1.000 ppm,	

SI

Komponente	Osnova	Vrednost	Parametri nadzora	Pripomba
Isobutane	SI OEL	MV	1.000 ppm, 2.400 mg/m3	
n-Butane	SI OEL	MV	1.000 ppm, 2.400 mg/m3	

SK

Súčasti	Podstata	Hodnota	Kontrolné parametre	Poznámka
Isobutane	SK OEL		1.000 ppm, 2.400 mg/m3	1, 2,
n-Butane	SK OEL	TSH	1.000 ppm, 2.400 mg/m3	1, 2,

1 Kategória 1: Dokázaný karcinogén pre l'udí
2 Kategória 2: Pravdepodobný mutagén

AT

Inhaltsstoffe	Basis	Wert	Zu überwachende Parameter	Bemerkung
Isobutane	AT OEL	TMW	800 ppm, 1.900 mg/m3	
	AT OEL	KZW	1.600 ppm, 3.800 mg/m3	

n-Butane	AT OEL	TMW	800 ppm, 1.900 mg/m3	
	AT OEL	KZW	1.600 ppm, 3.800 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Isobutane	BE OEL	TGG 8 hr	1.000 ppm,	
n-Butane	BE OEL	TGG 8 hr	1.000 ppm,	
	BE OEL	TGG 8 hr	1.000 ppm,	

DE

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

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

DK

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

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Isobutane	EE OEL	Piirnorm	800 ppm, 1.900 mg/m3	
n-Butane	EE OEL	Piirnorm	800 ppm, 1.500 mg/m3	

ES

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

FI

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

FR

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

normal Valeurs limites indicatives

GB

Ingredients	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. The identified substances include those which: - are assigned the risk phrases 'R45: May cause cancer'; 'R46: may cause heritable genetic damage'; 'R49: May cause cancer by inhalation' or - a substance or process listed in Schedule 1 of COSHH.

GR

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

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	

IE

Ingredients	Basis	Value	Control parameters	Note
n-Butane	IE OEL	OELV - 8 hrs (TWA)	600 ppm, 1.430 mg/m3	
	IE OEL	OELV - 15 min (STEL)	750 ppm, 1.780 mg/m3	

Personal protective equipment

Respiratory protection : 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.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form	:	Liquefied gas
Physical state	:	Gaseous
Color	:	Colorless
Odor	:	Odorless

Safety data

Flash point	:	-83 °C (-117 °F) estimated
Lower explosion limit	:	1,4 %(V)
Upper explosion limit	:	8,4 %(V)
Oxidizing properties	:	No
Autoignition temperature	:	460 °C (860 °F)
Molecular formula	:	C4H10
Molecular Weight	:	58,14 g/mol
pH	:	Not applicable
Pour point	:	No data available
Boiling point/boiling range	:	-12 °C (10 °F)
Vapor pressure	:	72,00 PSI at 37,8 °C (100,0 °F)
Water solubility	:	Negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	2,1 at 15,6 °C (60,1 °F) (Air = 1.0)

Evaporation rate	:	> 1
Percent volatile	:	> 99 %

10. STABILITY AND REACTIVITY

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Isobutane (Pure Grade)
Acute inhalation toxicity : LC50: 31 mg/l
Exposure time: 4 HR
Species: rat

Isobutane (Pure Grade)
Skin irritation : No skin irritation

Isobutane (Pure Grade)
Eye irritation : No eye irritation

Isobutane (Pure Grade)
Aspiration toxicity : No aspiration toxicity classification.

Isobutane (Pure Grade)
Further information : No data available.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability : Expected to be biodegradable

Further information on ecology

Additional ecological information : No data available

13. DISPOSAL CONSIDERATIONS

The information in this MSDS 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.

14. 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 MSDS and the bill of lading.

USDOT
UN1969, ISOBUTANE, 2.1

IMO / IMDG
UN1969, ISOBUTANE, 2.1, (-83 °C)

IATA
UN1969, ISOBUTANE, 2.1

ADR
UN1969, ISOBUTANE, 2.1

RID
UN1969, ISOBUTANE, 2.1 (13)

15. REGULATORY INFORMATION

National legislation

Major Accident Hazard Legislation	:	96/82/EC Update: 2003 Extremely flammable 8 Quantity 1: 10 t Quantity 2: 50 t
	:	96/82/EC Update: 2003 Liquefied extremely flammable gases (including LPG) and

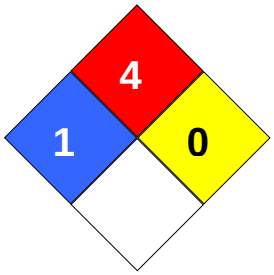
natural gas
11
Quantity 1: 50 t
Quantity 2: 200 t

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America US.TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
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	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

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



Further information

Legacy MSDS Number : 3438

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

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

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LOAEL	Lowest Observed Adverse Effect Level
AICS	Australia, Inventory of Chemical Substances	NFPA	National Fire Protection Agency
DSL	Canada, Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
NDSL	Canada, Non-Domestic Substances List	NTP	National Toxicology Program
CNS	Central Nervous System	NZIoC	New Zealand Inventory of Chemicals
CAS	Chemical Abstract Service	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration	NOEC	No Observed Effect Concentration

EC50	Effective Concentration 50%	OSHA	Occupational Safety & Health Administration
EINECS	European Inventory of Existing Chemical Substances	PEL	Permissible Exposure Limit
MAK	Germany Maximum Concentration Values	PICCS	Philipines Inventory of Commercial Chemical Substances
GHS	Globally Harmonized System	PRNT	Presumed Not Toxic
>=	Greater Than or Equal To	RCRA	Resource Conservation Recovery Act
IC50	Inhibition Concentration 50%	STEL	Short-term Exposure Limit
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act.
IECSC	Inventory of Existing Chemical Substances in China	TLV	Threshold Limit Value
ENCS	Japan, Inventory of Existing and New Chemical Substances	TWA	Time Weighted Average
KECI	Korea, Existing Chemical Inventory	TSCA	Toxic Substance Control Act
<=	Less Than or Equal To	UVCB	Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials
LC50	Lethal Concentration 50%	WHMIS	Workplace Hazardous Materials Information System
LD50	Lethal Dose 50%		

Full text of R-phrases referred to under sections 2 and 3

R12 Extremely flammable.

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.