

**Liquefied petroleum gas, mixture (propane/isobutane/  
butane)**

Version number: 1.0

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

### 1.1 Product identifier

**Trade name** Liquefied petroleum gas, mixture (propane/isobutane/  
butane)

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

**Relevant identified uses** Propellant

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

PROGAS GmbH & Co KG  
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Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact PROGAS GmbH & Co KG.

**National contact** e-Mail: [michael.kick@progas.de](mailto:michael.kick@progas.de)

### 1.4 Emergency telephone number

**Emergency information** +49 (0) 511-97996-62 (24h)

As above or nearest toxicological information centre.

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

Liquefied petroleum gas, mixture (propane/isobutane/  
butane)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
2.2	flammable gas	1A	Flam. Gas 1A	H220
2.5	gas under pressure	C	Press. Gas C	H280

For full text of abbreviations: see SECTION 16

### The most important adverse physicochemical, human health and environmental effects

Contains gas under pressure; may explode if heated.

## 2.2 Label elements

### Labelling according to Regulation (EC) No 1272/2008 (CLP)

**Signal word** danger

### Pictograms



GHS02, GHS04

### Hazard statements

**H220** Extremely flammable gas.

**H280** Contains gas under pressure; may explode if heated.

### Precautionary statements

**P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**P377** Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

**P403** Store in a well-ventilated place.

**Additional labelling requirements** see section 15 of the safety data sheet

## 2.3 Other hazards

Global warming potential.

May displace oxygen and cause rapid suffocation.

### Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of  $\geq 0,1\%$ .

### Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of  $\geq 0,1\%$ .


## SECTION 3: Composition/information on ingredients

### 3.1 Substances



Not relevant (mixture).

### 3.2 Mixtures

#### Description of the mixture

Hazardous ingredients					
Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
propane	CAS No 74-98-6  EC No 200-827-9  Index No 601-003-00-5  REACH Reg. No 01-2119486944- 21-xxxx	0 – < 100	Flam. Gas 1A / H220 Press. Gas C / H280		GHS-HC U(b)
isobutane	CAS No 75-28-5  EC No 200-857-2  Index No 601-004-00-0	0 – < 100	Flam. Gas 1A / H220 Press. Gas L / H280		C(a) U
butane	CAS No 106-97-8  EC No 203-448-7  Index No 601-004-00-0	0 – < 100	Flam. Gas 1A / H220 Press. Gas L / H280		C S U
but-1-ene	CAS No 106-98-9  EC No 203-449-2  Index No 601-012-00-4	0 – 5	Flam. Gas 1A / H220 Press. Gas C / H280		C GHS-HC U(b)

**Liquefied petroleum gas, mixture (propane/isobutane/  
butane)**

<b>Hazardous ingredients</b>					
<b>Name of substance</b>	<b>Identifier</b>	<b>Wt%</b>	<b>Classification acc. to GHS</b>	<b>Pictograms</b>	<b>Notes</b>
butene, mixed-1-and-2-isomers	CAS No 107-01-7  EC No 203-452-9  Index No 601-012-00-4	0 – 5	Flam. Gas 1A / H220 Press. Gas C / H280		C GHS-HC U(b)
propene	CAS No 115-07-1  EC No 204-062-1  Index No 601-011-00-9	0 – 5	Flam. Gas 1A / H220 Press. Gas C / H280		U

**Notes**

C(a): Mixture of isomers

C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

GHS- Harmonised classification (the classification of the substance corresponds to the entry in the list according to  
HC: 1272/2008/EC, Annex VI)

S: This substance may not require a label according to Article 17 (see Section 1.3 of Annex I) (Table 3).

U(b): The allocation to the group 'compressed gas' is based on the physical state in which the gas is packaged

U: When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

For full text of H-phrases: see SECTION 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

Self-protection of the first aider.

In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following inhalation

Provide fresh air.

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

In case of unconsciousness place person in the recovery position. Never give anything by mouth.

**Following skin contact**

Thaw frosted parts with lukewarm water. Do not rub affected area.  
Get medical advice/attention.

**Following eye contact**

Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Get medical advice/attention.

**Following ingestion**

No exposure expected.

**Notes for the doctor**

None.

**4.2 Most important symptoms and effects, both acute and delayed**

Drowsiness.  
Dizziness.

**4.3 Indication of any immediate medical attention and special treatment needed**

None.

## SECTION 5: Firefighting measures

**5.1 Extinguishing media**

**Suitable extinguishing media**

water spray, alcohol resistant foam, fire extinguishing powder

**Unsuitable extinguishing media**

water jet

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

Hazardous decomposition products: Section 10.

Contact with the product can cause burns and/or frostbite.

Contains gas under pressure; may explode if heated.

Danger of bursting container.

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

**Hazardous combustion products**

carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)

**5.3 Advice for firefighters**

Keep containers cool with water spray.

In case of fire and/or explosion do not breathe fumes.

Co-ordinate firefighting measures to the fire surroundings.

Collect contaminated firefighting water separately.

Fight fire with normal precautions from a reasonable distance.

**Special protective equipment for firefighters**

use suitable breathing apparatus, wear self-contained breathing apparatus

## SECTION 6: Accidental release measures

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

#### For non-emergency personnel

Remove persons to safety.

Ventilate affected area.

#### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

Self-contained breathing apparatus.

### 6.2 Environmental precautions

Do not empty into drains.

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

Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5.

Personal protective equipment: see section 8.

Incompatible materials: see section 10.

Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Do not breathe vapour/spray.

#### Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Keep away from sources of ignition - No smoking.

#### Measures to protect the environment

Avoid release to the environment.

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

#### Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Take precautionary measures against static discharge.

#### Incompatible substances or mixtures

Incompatible materials: see section 10.

**Protect against external exposure, such as**

heat

**Consideration of other advice**

Keep away from food, drink and animal feeding stuffs.

**Ventilation requirements**

Provision of sufficient ventilation.

**Specific designs for storage rooms or vessels**

Keep container tightly closed and in a well-ventilated place.

Keep cool.

**Packaging compatibilities**

Only packagings which are approved (e.g. acc. to ADR) may be used.

**7.3 Specific end use(s)**

Propellant.

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**Occupational exposure limit values (Workplace Exposure Limits)**

This information is not available

**8.2 Exposure controls**

**Appropriate engineering controls**

Use local and general ventilation.

**Individual protection measures (personal protective equipment)**

**Eye/face protection**

Wear cold insulating gloves/face shield/eye protection.

**Body protection**

(EN 13832, EN 340, EN 14605).

**Respiratory protection**

In case of inadequate ventilation wear respiratory protection.

Self-contained breathing apparatus.

**Environmental exposure controls**

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	gaseous (liquid under pressure)
<b>Colour</b>	colourless
<b>Odour</b>	recognizable
<b>Melting point/freezing point</b>	-187,7 / -159,4 / -138,3 °C (propane/isobutane/butane)
<b>Boiling point or initial boiling point and boiling range</b>	-42,1 / -11,7 / -0,5 °C (propane/isobutane/butane)
<b>Flammability</b>	flammable gas in accordance with GHS criteria
<b>Lower and upper explosion limit</b>	1,7 / 1,3 / 1,4 - 10,9 / 9,8 / 9,3
<b>Flash point</b>	-100 °C
<b>Auto-ignition temperature</b>	470 / 460 / 450 °C (propane/isobutane/butane)
<b>Decomposition temperature</b>	not relevant
<b>pH (value)</b>	not determined
<b>Viscosity</b>	not relevant (gaseous)
<b>Solubility(ies)</b>	
Water solubility	75 / 49 / 61 mg/l (20°C) (propane/isobutane/butane)
<b>Partition coefficient n-octanol/water (log value)</b>	not determined
<b>Vapour pressure</b>	830 / 302 / 208 kPa (20°C) (propane/isobutane/butane)
<b>Density and/or relative density</b>	
Density	liquid 0,58 / 0,5937 / 0,59 g/ml (propane/isobutane/butane)
Density	gaseous 2,01 / 2,70 / 2,71 g/l (0°C, 1013 hPa) (propane/isobutane/butane)
<b>Particle characteristics</b>	not relevant (gaseous)



## 9.2 Other information

**Information with regard to physical hazard classes** there is no additional information

**Other safety characteristics** there is no additional information

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Risk of ignition.

If heated:

Danger of explosion.

Gas under pressure.

Danger of bursting container.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

### 10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Contains gas under pressure; may explode if heated.

### 10.5 Incompatible materials

oxidisers

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Classification procedure

If not otherwise specified the classification is based on:  
Ingredients of the mixture (additivity formula).

#### Classification according to GHS (1272/2008/EC, CLP)

##### Acute toxicity

Test data are not available for the complete mixture.

**Skin corrosion/irritation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Serious eye damage/eye irritation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Respiratory or skin sensitisation**

**Skin sensitisation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Respiratory sensitisation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Germ cell mutagenicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Carcinogenicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Reproductive toxicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Specific target organ toxicity - single exposure**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Specific target organ toxicity - repeated exposure**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**Other information**

May displace oxygen and cause rapid suffocation.  
Contains refrigerated gas; may cause cryogenic burns or injury.

## 11.2 Information on other hazards

### Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of  $\geq 0,1\%$ .

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity (acute)

Test data are not available for the complete mixture.

#### Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
propane	74-98-6	LC50	48 h	14.22 mg/l	aquatic invertebrates	Qsar	ECHA
propane	74-98-6	LC50	96 h	24.11 mg/l	fish	Qsar	ECHA
propane	74-98-6	EC50	96 h	7.71 mg/l	green algae	(Q)SAR	ECHA
butane	106-97-8	LC50	48 h	14.22 mg/l	aquatic invertebrates	Qsar	ECHA
butane	106-97-8	LC50	96 h	24.11 mg/l	fish	Qsar	ECHA
butane	106-97-8	EC50	96 h	7.71 mg/l	green algae	(Q)SAR	ECHA
isobutane	75-28-5	LC50	48 h	7.02 – 69.43 mg/l	aquatic invertebrates	calculated	ECHA
isobutane	75-28-5	LC50	96 h	24.11 – 147.5 mg/l	fish	calculated	ECHA
isobutane	75-28-5	EC50	96 h	7.71 – 16.5 mg/l	algae	calculated	ECHA
but-1-ene	106-98-9	LC50	96 h	19 mg/l	fish	-	ECHA
but-1-ene	106-98-9	EC50	96 h	6.5 mg/l	algae	-	ECHA
propene	115-07-1	LL50	72 h	43.28 mg/l	fish	-	ECHA
propene	115-07-1	LC50	96 h	51.7 mg/l	fish	-	ECHA
propene	115-07-1	EC50	96 h	12.1 mg/l	algae	-	ECHA
propene	115-07-1	EL50	72 h	44.8 mg/l	algae	-	ECHA

#### Aquatic toxicity (chronic)

Test data are not available for the complete mixture.

### Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Exposure time	Value	Species	Method	Source
but-1-ene	106-98-9	NOEC	30 d	2.286 mg/l	fish	-	ECHA
propene	115-07-1	NOELR	32 d	8.29 mg/l	fish	-	ECHA

## 12.2 Persistence and degradability

### Biodegradation

No data available.

### Persistence

No data available.

## 12.3 Bioaccumulative potential

Test data are not available for the complete mixture.

### Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW
propane	74-98-6	-	1.09 – 2.8 (pH value: 7, 20 °C)
butane	106-97-8	-	1.09 (pH value: 7, 20 °C)
isobutane	75-28-5	-	2.8
but-1-ene	106-98-9	-	2.4
propene	115-07-1	6.84	1.77 (pH value: 7, 20 °C)

## 12.4 Mobility in soil

No data available.

## 12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of  $\geq 0,1\%$ .

## 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of  $\geq 0,1\%$ .

## 12.7 Other adverse effects

Data are not available.

### Remarks

Wassergefährdungsklasse, WGK (water hazard class): nwg

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

No waste related measures required.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

Completely emptied packages can be recycled.

#### Remarks

Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

### 14.1 UN number or ID number

<b>ADR/RID/ADN</b>	UN1965
<b>IMDG-Code</b>	UN1965
<b>ICAO-TI</b>	UN1965

### 14.2 UN proper shipping name

<b>ADR/RID/ADN</b>	HYDROCARBON GAS MIXTURES, LIQUEFIED, N.O.S. (mixture C)
<b>IMDG-Code</b>	HYDROCARBON GAS MIXTURES, LIQUEFIED, N.O.S. (mixture C)
<b>ICAO-TI</b>	Hydrocarbon gas mixtures, liquefied, n.o.s. (mixture C)
<b>Technical name (hazardous ingredients)</b>	propane, butane

### 14.3 Transport hazard class(es)

<b>ADR/RID/ADN</b>	2 (2.1)
<b>IMDG-Code</b>	2.1
<b>ICAO-TI</b>	2.1

### 14.4 Packing group

-

### 14.5 Environmental hazards

environmentally hazardous (ADN)

### 14.6 Special precautions for user

-


### 14.7 Maritime transport in bulk according to IMO instruments

-

## 14.8 Information for each of the UN Model Regulations

### Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

#### Additional information

Particulars in the transport document	UN1965, HYDROCARBON GAS MIXTURES, LIQUEFIED, N.O.S. (mixture C), (contains: propane, butane), 2.1, (B/D)
Classification code	2F
Danger label(s)	2.1
	
Special provisions (SP)	274, 583, 652(ADR), 660, 662
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
Transport category (TC)	2
Tunnel restriction code (TRC)	B/D
Hazard identification No	23

### European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) Additional information

Number of cones/blue lights	1
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### International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant	-
Danger label(s)	2.1
	
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
EmS	<u>F-D</u> , S-U
Stowage category	E

### International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Danger label(s)	2.1
	
Special provisions (SP)	A1
Excepted quantities (EQ)	E0

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

#### Restrictions according to REACH, Annex XVII

Name	Name acc. to inventory	CAS No	Restriction
isobutane	flammable / pyrophoric	-	R40
but-1-ene	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	-	R3
but-1-ene	flammable / pyrophoric	-	R40
butene, mixed-1-and-2-isomers	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	-	R3
butene, mixed-1-and-2-isomers	flammable / pyrophoric	-	R40
propene	flammable / pyrophoric	-	R40
butane	flammable / pyrophoric	-	R40
propane	flammable / pyrophoric	-	R40

#### Legend

- R3
- Shall not be used in:
    - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
    - tricks and jokes,
    - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
  - Articles not complying with paragraph 1 shall not be placed on the market.
  - Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
    - can be used as fuel in decorative oil lamps for supply to the general public, and
    - present an aspiration hazard and are labelled with H304.
  - Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
  - Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
    - lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
    - grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
    - lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;

**Legend**

- R40
1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
    - metallic glitter intended mainly for decoration,
    - artificial snow and frost,
    - 'whoopee' cushions,
    - silly string aerosols,
    - imitation excrement,
    - horns for parties,
    - decorative flakes and foams,
    - artificial cobwebs,
    - stink bombs.
  2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: 'For professional users only'.
  3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
  4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

**List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list**

None of the ingredients are listed.

**Seveso Directive**

<b>2012/18/EU (Seveso III)</b>			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
18	petroleum gases, liquefied	50                      200	61)

**Notation**

61) liquefied flammable gases, category 1 or 2 (including LPG) and natural gas

**Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)**

None of the ingredients are listed.

**Regulation on the marketing and use of explosives precursors**

None of the ingredients are listed.

**Regulation on drug precursors**

None of the ingredients are listed.

**Regulation on substances that deplete the ozone layer (ODS)**

None of the ingredients are listed.

**Regulation concerning the export and import of hazardous chemicals (PIC)**

None of the ingredients are listed.



## Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
EL50	Effective Loading 50 %: the EL50 corresponds to the loading rate required to produce a response in 50% of the test organisms
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Flam. Gas	Flammable gas
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code

**Liquefied petroleum gas, mixture (propane/isobutane/  
butane)**

Abbr.	Descriptions of used abbreviations
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LL50	Lethal Loading 50 %: the LL50 corresponds to the loading rate causing 50 % lethality
log KOW	n-Octanol/water
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
NOELR	No Observed Effect Loading Rate
PBT	Persistent, Bioaccumulative and Toxic
Press. Gas	Gas under pressure
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
SVHC	Substance of Very High Concern
vPvB	Very Persistent and very Bioaccumulative

### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.  
Regulation (EC) No. 1907/2006 (REACH).

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties.

Health hazards.

Environmental hazards.

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in section 2 and 3)

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

**Responsible for the safety data sheet**

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**Disclaimer**

This information is based upon the present state of our knowledge.  
This SDS has been compiled and is solely intended for this product.