

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

### 1.1. Product identifier

Name of product Optimus Gas

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

Recommended intended purpose(s)

Combustible

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

Manufacturer/distributor

Katadyn Produkte AG  
Pfäffikerstrasse 37, CH-8310 Kempthal  
Phone +41 44 839 21 11

Advice

This number is only available at office times.  
Phone +41 44 839 21 11  
E-mail (competent person):  
info@katadyn.ch

### 1.4. Emergency telephone number

Emergency advice

Swiss toxicological Information Center  
Phone 145 / +41 44 251 51 51

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to 67/548/EEC or 1999/45/EC

F+; R12

R-phrases

12 Extremely flammable.

Additional hints

The preparation is classified as hazardous according Directive 1999/45/EC.

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

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

Hazard classes and Hazard  
categories

Hazard  
Statements

Classification procedure

Flam. Gas 1

H220

**Hazard statements for physical hazards**

H220 Extremely flammable gas.

Additional hints

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

This mixture is classified as hazardous according to Regulation (EC) No 1272/2008 [GHS].

### 2.2. Label elements

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Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]



GHS02

**Signal word**  
Danger

**Hazard statements for physical hazards**  
H220 Extremely flammable gas.

**Precautionary Statements**

**General**

P102 Keep out of reach of children.

**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**

P403 Store in a well-ventilated place.

**Hazardous ingredients for labeling**

butane, propane

**2.3. Other hazards**

**Adverse physicochemical effects**

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

In the case of insufficient ventilation and/or through the formation of a explosive/highly flammable mixture is possible.

Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode.

It is possible that in the head space of sealed containers, especially in the case of thermal development, vapours of solvent cleaners may accumulate. Flames and sources of ignition must be kept well away.

Until complete evaporation of flammable components explosive vapour-air mixtures may form, even after use.

**Information pertaining to special dangers for human and environment**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.

In use, may form flammable/explosive vapour-air mixture.

## SECTION 3: Composition/ information on ingredients

### 3.1. Substances

not applicable

### 3.2. Mixtures

#### Hazardous ingredients

CAS No	EC No	Name	[% weight]	Classification according to 67/548/EEC
74-98-6	200-827-9	propane	ca. 30	F+ R12
106-97-8	203-448-7	butane	ca. 70	F+ R12

CAS No	EC No	Name	[% weight]	Classification according to Regulation (EC) No 1272/2008 [CLP/ GHS]
74-98-6	200-827-9	propane	ca. 30	Flam. Gas 1, H220 / Press. Gas
106-97-8	203-448-7	butane	ca. 70	Flam. Gas 1, H220 / Press. Gas

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

In the event of persistent symptoms receive medical treatment.

#### In case of inhalation

Remove the casualty into fresh air and keep him immobile.

In the event of symptoms refer for medical treatment.

#### In case of skin contact

Wash off immediately and for a long time with plenty of water.

In case of frostbite rinse with plenty of water. Don't remove clothing.

#### In case of eye contact

Eye rinsing with water carefully while protecting unhurt eye.

#### In case of ingestion

If swallowed seek medical advice immediately and show the doctor packing or label.

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

No information available.

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

No information available.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

Foam

Dry powder

Carbon dioxide

Water spray jet

## **Unsuitable extinguishing media**

Full water jet

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

In case of fire formation of dangerous gases possible.

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

## **5.3. Advice for firefighters**

### **Special protective equipment for fire-fighters**

Use breathing apparatus with independent air supply.

### **Additional information**

Cool endangered containers with water spray jet.

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## **SECTION 6: Accidental release measures**

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

#### **For non-emergency personnel**

Ensure adequate ventilation.

Keep away sources of ignition.

### **6.2. Environmental precautions**

not applicable

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

Ensure adequate ventilation.

#### **Additional Information**

Informations for safe handling see chapter 7.

Informations for personal protective equipment see chapter 8.

Informations for disposal see chapter 13.

### **6.4. Reference to other sections**

No information available.

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## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

#### **Advice on safe handling**

Do not puncture / pierce or incinerate, even after use.

Ventilate closed rooms at ground level.

Use only in thoroughly ventilated areas.

Avoid impact, friction and electrostatically charging; risk of ignition!

#### **General protective measures**

Do not inhale gases.

#### **Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking

Vapours can form an explosive mixture with air.

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

### Requirements for storage rooms and vessels

Keep out of the reach of children.

Ventilate store-rooms thoroughly.

### Advice on storage compatibility

Do not store with combustible materials.

### Further information on storage conditions

Store only in original container at temperature of 50°C maximum (=122°F).

Protect from heat and direct solar radiation.

Store container at cool and aired place.

## 7.3. Specific end use(s)

No information available.

## ! SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### ! Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]		Remark
106-97-8	butane	8 hours	1900	800	4(II)	DFG, SUVA
74-98-6	propane	8 hours	1800	1000	4(II)	DFG, SUVA

### 8.2. Exposure controls

#### Respiratory protection

No special measures necessary if used correctly.

#### Hand protection

No special measures necessary if used correctly.

#### Eye protection

No special measures necessary if used correctly.

#### Appropriate engineering controls

Keep away from sources of ignition - No smoking

## SECTION 9: Physical and chemical properties

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

#### Appearance

gaseous

#### Colour

colourless

#### Odour

characteristic

#### Odour threshold

not determined

#### Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	not applicable				
Boiling temperature / boiling range	not determined				

	Value	Temperature	at	Method	Remark
<b>Melting point / Freezing point</b>	not determined				
<b>Flash point</b>	< 0 °C				
<b>Vapourisation rate</b>	not determined				
<b>Flammable (solid)</b>	not determined				
<b>Flammability (gas)</b>	not determined				
<b>Ignition temperature</b>	430 °C				
<b>Self ignition temperature</b>	not determined				
<b>Lower explosion limit</b>	1.5 Vol-%				
<b>Upper explosion limit</b>	8.5 Vol-%				
<b>Vapour pressure</b>	3000 hPa	20 °C			
<b>Relative density</b>	0.56 g/ml	20 °C			
<b>Vapour density</b>	not determined				
<b>Solubility in water</b>					insoluble
<b>Solubility/other</b>	not determined				
<b>Partition coefficient n-octanol/water (log P O/W)</b>	not determined				
<b>Decomposition temperature</b>	not determined				
<b>Viscosity</b>	not determined				

#### **Oxidising properties**

No information available.

#### **Explosive properties**

Vapours can form an explosive mixture with air.

#### **9.2. Other information**

No information available.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No information available.

### 10.2. Chemical stability

No information available.

### 10.3. Possibility of hazardous reactions

No information available.

### 10.4. Conditions to avoid

No decomposition if used as directed.

### 10.5. Incompatible materials

#### Materials to avoid

No hazardous reactions known.

### 10.6. Hazardous decomposition products

No hazardous decomposition products known.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
<b>LD50 acute oral</b>	not determined			
<b>LD50 acute dermal</b>	not determined			
<b>Irritability skin</b>	non-irritant			
<b>Irritability eye</b>	non-irritant			
<b>Skin sensitization</b>	non-sensitizing			

#### Additional information

In the case of appropriate handling and intended use no healthwise unfavorable effects of the product are well-known.

The product was classified on the basis of the calculation procedure of the preparation directive (1999/45/EC).

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Ecotoxicological effects

	Value	Species	Method	Validation
<b>Fish</b>	not determined			
<b>Daphnia</b>	not determined			

Value	Species	Method	Validation
<b>Algae</b>	not determined		
<b>12.2. Persistence and degradability</b>			
<b>Biological degradability</b>	not applicable		
<b>12.3. Bioaccumulative potential</b>			
not applicable			
<b>12.4. Mobility in soil</b>			
No information available.			
<b>12.5. Results of PBT and vPvB assessment</b>			
No information available.			
<b>12.6. Other adverse effects</b>			
<b>General regulation</b>			
Material has no ecologically harmful effects.			
Product is in atmosphere readily degradable.			

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Waste code No.

16 05 04\*

#### Name of waste

gases in pressure containers (including halons) containing dangerous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

### Recommendations for the product

Can be incinerated together with household refuse in accordance with the regulations and on consultation with the disposal agency and the relevant authorities.

### Recommendations for packaging

Totally emptied packaging may be taken for recycling.

## ! SECTION 14: Transport information

	ADR/RID	IMDG	IATA-DGR
<b>14.1. UN number</b>	2037	2037	2037
<b>14.2. UN proper shipping name</b>	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) (butane)	GAS CARTRIDGES (butane)	GAS CARTRIDGES (butane)
<b>14.3. Transport hazard class(es)</b>	2.1	2.1	2.1



	ADR/RID	IMDG	IATA-DGR
<b>14.4. Packing group</b>	-	-	5F
<b>14.5. Environmental hazards</b>	No	No	No
<b>14.6. Special precautions for user</b> No information available.			
<b>14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> No information available.			
<b>Land and inland navigation transport ADR/RID</b>			
Hazard label(s) 2.1			
tunnel restriction code D			
Classification code 5F			
<b>Marine transport IMDG</b>			
EMS No. F-D, S-U			

## SECTION 15: Regulatory information

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

#### National regulations

**Water hazard class** -  
nwh - not water hazardous

### 15.2. Chemical Safety Assessment

No information available.

## SECTION 16: Other information

### Recommended uses and restrictions

National and local regulations concerning chemicals shall be observed.

### Further information

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 1.0

### Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 12 Extremely flammable.

H220 Extremely flammable gas.