

**1-Chlorbutan**

Version number: 5.0  
Replaces version of: 2017-03-15 (4)

Revision: 2018-04-10  
First version: 29.03.2003

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

<b>Trade name</b>	<b><u>1-Chlorbutan</u></b>
<b>Product number</b>	023-03593, 027-03596 , 023-06315, 033-24371
<b>Registration number (REACH)</b>	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
<b>EC number</b>	203-696-6
<b>Index number in CLP Annex VI</b>	602-059-00-3
<b>CAS number</b>	109-69-3

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

<b>Relevant identified uses</b>	Solvent for various applications Chemicals for various applications For research use
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**1.3 Details of the supplier of the safety data sheet**

FUJIFILM Wako Chemicals Europe GmbH Fuggerstr. 12 41468 Neuss Germany	Telephone: +49 (0) 2131 - 311-0 Telefax: +49(0)2131 - 311 100
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**e-mail (competent person)** [sdb@csb-online.de](mailto:sdb@csb-online.de)

Please do not use this e-mail adress to ask for the latest safety data sheet. For this purpose contact FUJIFILM Wako Chemicals Europe GmbH.

**1.4 Emergency telephone number**

As above or next toxicological information centre.

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
2.6	flammable liquid	2	Flam. Liq. 2	H225
3.10	aspiration hazard	1	Asp. Tox. 1	H304
4.1C	hazardous to the aquatic environment - chronic hazard	3	Aquatic Chronic 3	H412

for full text of abbreviations: see SECTION 16

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

The product is combustible and can be ignited by potential ignition sources. Spillage and fire water can cause pollution of watercourses.

### 2.2 Label elements

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

**Signal word** danger

#### Pictograms

GHS02, GHS08



#### Hazard statements

**H225** Highly flammable liquid and vapour.  
**H304** May be fatal if swallowed and enters airways.  
**H412** Harmful to aquatic life with long lasting effects.

#### Precautionary statements

**P280** Wear protective gloves/protective clothing/eye protection/face protection.  
**P304+P340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
**P310** Immediately call a POISON CENTER/doctor.

### 2.3 Other hazards

There is no additional information.

#### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

<b>Name of substance</b>	1-Chlorbutan
<b>Identifiers</b>	
CAS No	109-69-3
EC No	203-696-6
Index No	602-059-00-3
<b>Molecular formula</b>	C <sub>4</sub> H <sub>9</sub> Cl
<b>Molar mass</b>	92.57 g/mol

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

Take off immediately all contaminated clothing.  
In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following inhalation

Provide fresh air.  
Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.  
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

#### Following skin contact

Wash with plenty of soap and water.  
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.  
After contact with skin, wash immediately with plenty of water/propylene glycol 400.

#### Following eye contact

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

#### Following ingestion

Rinse mouth. Do not induce vomiting.  
Get medical advice/attention if you feel unwell.  
Call a physician in any case.

#### Notes for the doctor

none

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

Death following aspiration.

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

#### Unsuitable extinguishing media

water jet

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

Hazardous decomposition products: Section 10.

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

Solvent vapours are heavier than air and may spread along floors.

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures.

#### Hazardous combustion products

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

### 5.3 Advice for firefighters

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

Co-ordinate firefighting measures to the fire surroundings.

Do not allow firefighting water to enter drains or water courses.

Collect contaminated firefighting water separately.

Fight fire with normal precautions from a reasonable distance.

#### Special protective equipment for firefighters

use suitable 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.

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

#### For emergency responders

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

### 6.2 Environmental precautions

Remove from the water surface (e.g. skimming, sucking).

Keep away from drains, surface and ground water.

Retain contaminated washing water and dispose of it.

If substance has entered a water course or sewer, inform the responsible authority.

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## 6.3 Methods and material for containment and cleaning up

### Advices on how to clean up a spill

Collect spillage.

Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.).

### Appropriate containment techniques

Use of adsorbent materials.

### Other information relating to spills and releases

Place in appropriate containers for disposal.

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

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

Use local and general ventilation.

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

#### Specific notes/details

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures.

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

Vapours may form explosive mixtures with air.

#### Measures to protect the environment

Avoid release to the environment.

#### Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Wash hands after use.

Preventive skin protection (barrier creams/ointments) is recommended.

Remove contaminated clothing and protective equipment before entering eating areas.

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## 7.2 Conditions for safe storage, including any incompatibilities

### Explosive atmospheres

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

Use local and general ventilation.

Keep cool.

Protect from sunlight.

### Flammability hazards

Keep away from sources of ignition - No smoking.

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

Take precautionary measures against static discharge.

Ground/bond container and receiving equipment.

Protect from sunlight.

### Incompatible substances or mixtures

Incompatible materials: see section 10.

### Protect against external exposure, such as

heat, humidity, UV-radiation/sunlight

### Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

### Ventilation requirements

Provision of sufficient ventilation.

### Specific designs for storage rooms or vessels

### Storage temperature

recommended storage temperature: 15 - 25 °C

### Packaging compatibilities

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

## 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	3.4 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	0.96 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

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## Environmental values

Relevant PNECs and other threshold levels		
Endpoint	Threshold level	Environmental compartment
PNEC	0.756 mg/l	water
PNEC	0.056 mg/l	freshwater
PNEC	0.006 mg/l	marine water
PNEC	10 mg/l	sewage treatment plant (STP)
PNEC	1.971 mg/kg	freshwater sediment
PNEC	0.197 mg/kg	marine sediment
PNEC	0.367 mg/kg	soil

## 8.2 Exposure controls

### Appropriate engineering controls

General ventilation.

### Individual protection measures (personal protective equipment)

#### Eye/face protection

Wear eye/face protection.

#### Hand protection

Material	Material thickness	Breakthrough times of the glove material
NBR: acrylonitrile-butadiene rubber	≥ 0,35 mm	>480 minutes (permeation: level 6)
FKM: fluoro-elastomer	≥ 0,4 mm	>480 minutes (permeation: level 6)

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

In the case of wanting to use the gloves again, clean them before taking off and air them well.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection.

#### Environmental exposure controls

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid
Form	fluid
Colour	colourless
Odour	ether-like
Odour threshold	these information are not available

#### Other safety parameters

pH (value)	these information are not available
Melting point/freezing point	-123.1 °C
Initial boiling point and boiling range	78.8 °C
Flash point	-12 °C
Evaporation rate	these information are not available
Flammability (solid, gas)	not relevant (fluid)

#### Explosive limits

**Lower explosion limit (LEL)** 1.8 vol%

**Upper explosion limit (UEL)** 10.1 vol%

Vapour pressure 120.6 hPa at 20 °C

Density 0.886 g/cm<sup>3</sup> at 20 °C

Vapour density these information are not available

Relative density 3.2 (air = 1)

#### Solubility(ies)

**Water solubility** 0.11 g/l at 20 °C, not miscible in any proportion

#### Partition coefficient

n-octanol/water (log KOW) 2.66 (20 °C)

Auto-ignition temperature 245 °C

Relative self-ignition temperature for solids not relevant  
(Fluid)

Decomposition temperature these information are not available

#### Viscosity

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<b>Kinematic viscosity</b>	these information are not available
<b>Dynamic viscosity</b>	0.45 mPa s at 20 °C
Explosive properties	not explosive
Oxidising properties	shall not be classified as oxidising

## 9.2 Other information

<b>Temperature class (EU, acc. to ATEX)</b>	T3
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Risk of ignition.

If heated:

risk of ignition

### 10.2 Chemical stability

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.  
Take precautionary measures against static discharge.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

### 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 toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).

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

##### **Acute toxicity**

Shall not be classified as acutely toxic (oral).

Shall not be classified as acutely toxic (dermal).

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<b>Acute toxicity</b>				
<b>Exposure route</b>	<b>Endpoint</b>	<b>Value</b>	<b>Species</b>	<b>Source</b>
inhalation: dust/mist	LC50	>7.74 mg/l/4h	rat	ECHA
oral	LD50	2,200 mg/kg	rat	
dermal	LD50	>17,600 mg/kg	rabbit	

## **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**

May be fatal if swallowed and enters airways.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Aquatic toxicity (acute)				
Endpoint	Value	Species	Source	Exposure time
LC50	71.4 mg/l	fish	ECHA	96 h
EC50	452 mg/l	aquatic invertebrates	ECHA	48 h
ErC50	>450 mg/l	algae	ECHA	72 h

#### Aquatic toxicity (chronic)

Harmful to aquatic life with long lasting effects.

### 12.2 Persistence and degradability

Process of degradability			
Process	Degradation rate	Time	Source
oxygen depletion	47.2 %	28 d	ECHA

#### Biodegradation

The substance is readily biodegradable.

#### Persistence

Data are not available.

### 12.3 Bioaccumulative potential

Data are not available.

**n-octanol/water (log KOW)** 2.66 (20 °C)  
(ECHA)

**BCF** 7.6 – 21  
(ECHA)

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

### 12.6 Other adverse effects

Data are not available.

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## Endocrine disrupting potential

Not listed.

## Remarks

Wassergefährdungsklasse, WGK (water hazard class): 2

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

### Sewage disposal-relevant information

Do not empty into drains.

### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself.

## Remarks

Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

14.1	UN number	1127
14.2	UN proper shipping name	CHLOROBUTANES
14.3	Transport hazard class(es)	
	Class	3
14.4	Packing group	II
14.5	Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6	Special precautions for user	Provisions for dangerous goods (ADR) should be complied within the premises.
14.7	Transport in bulk according to Annex II of MARPOL and the IBC Code	The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

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

UN number	1127
Proper shipping name	UN1127, CHLOROBUTANES, 3, II, (D/E)
Class	3
Classification code	F1

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Packing group	II
Danger label(s)	3
	
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2.
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
Emergency Action Code	3YE

## International Maritime Dangerous Goods Code (IMDG)

UN number	1127
Proper shipping name	UN1127, CHLOROBUTANES, 3, II, -12°C c.c.
Class	3
Marine pollutant	-
Packing group	II
Danger label(s)	3
	
Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	B
Segregation group	10 - Liquid halogenated hydrocarbons.

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

UN number	1127
Proper shipping name	UN1127, Chlorobutanes, 3, II
Class	3
Packing group	II
Danger label(s)	3



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Exempted quantities (EQ)	E2
Limited quantities (LQ)	1 L

## 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

Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	Type of registration	Restriction	No
1-chlorobutane	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	1907/2006/EC annex XVII	R3	3
1-chlorobutane	flammable / pyrophoric	1907/2006/EC annex XVII	R40	40

#### 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 R65 or 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 Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
    - lamp oils, labelled with R65 or 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 R65 or 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 may lead to life threatening lung damage';
    - lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
  - No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
  - Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member

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## Legend

States shall make those data available to the Commission.

- 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

not listed

### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
P5c	flammable liquids (cat. 2, 3)	5,000                      50,000	51)

#### Notation

51) flammable liquids, categories 2 or 3 not covered by P5a and P5b

## Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

## Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

## Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

## Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

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## National inventories

The contained substances are listed in the following national inventories.

National inventories		
Country	Inventory	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

### Legend

AICS	Australian Inventory of Chemical Substances
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

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

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## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

Indication of changes (revised safety data sheet)		
Section	Former entry (text/value)	Actual entry (text/value)
1.3	e-mail (competent person): sdb@csb-online.de Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact Wako Chemicals GmbH.	e-mail (competent person): sdb@csb-online.de Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact FUJIFILM Wako Chemicals Europe GmbH.
15.1		Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)

### Abbreviations and acronyms

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 européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
DNEL	Derived No-Effect Level
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
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
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

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<b>Abbreviations and acronyms</b>	
<b>Abbr.</b>	<b>Descriptions of used abbreviations</b>
IMDG	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
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
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), amended by 2015/830/EU.

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).

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

<b>List of relevant phrases (code and full text as stated in chapter 2 and 3)</b>	
<b>Code</b>	<b>Text</b>
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H412	Harmful to aquatic life with long lasting effects.

## 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.