

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**
Version: **1.0 en**

date of compilation: 2016-12-01

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

1.1 Product identifier

Identification of the substance	Chloral hydrate
Article number	K318
Registration number (REACH)	01-2120117773-57-xxxx
Index No	605-014-00-6
EC number	206-117-5
CAS number	302-17-0

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

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
3.10	acute toxicity (oral)	(Acute Tox. 3)	H301
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate $\geq 99,5\%$, Ph.Eur., BP, USP

article number: **K318**

Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2 Label elements

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

Signal word

Danger

Pictograms



Hazard statements

H301	Toxic if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary statements

Precautionary statements - prevention

P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/eye protection.

Precautionary statements - response

P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H301	Toxic if swallowed.
P270	Do not eat, drink or smoke when using this product.

2.3 Other hazards

There is no additional information.

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	2,2,2-trichloroethane-1,1-diol
Index No	605-014-00-6
Registration number (REACH)	01-2120117773-57-xxxx
EC number	206-117-5
CAS number	302-17-0
Molecular formula	C ₂ H ₃ Cl ₃ O ₂
Molar mass	165,4 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

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

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Nausea, Vomiting, Breathing difficulties, Unconsciousness

4.3 Indication of any immediate medical attention and special treatment needed

none

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride (HCl), phosgene

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Do not breathe dust. Avoid contact with skin and eyes.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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.

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate $\geq 99,5\%$, Ph.Eur., BP, USP

article number: K318

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide adequate ventilation. Avoid exposure.

Advice on general occupational hygiene

When using do not eat or drink. Wash hands after use.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in the original container. Store in a dry place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Store locked up.

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Data are not available.

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	1,716 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	0,973 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment
PNEC	0,115 mg/l	freshwater
PNEC	0,011 mg/l	marine water
PNEC	7,9 mg/l	sewage treatment plant (STP)
PNEC	0,09 mg/kg	freshwater sediment
PNEC	0,009 mg/kg	marine sediment
PNEC	0,02 mg/kg	soil

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

8.2 Exposure controls

Individual protection measures (personal protective equipment)



Eye/face protection

Use safety goggle with side protection.

Skin protection

- **hand protection**

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

- **type of material**

NBR (Nitrile rubber)

- **material thickness**

>0,11 mm

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (crystalline)
Colour	whitish
Odour	stinging
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	3,5 - 5,5 (100 g/l, 20 °C)
Melting point/freezing point	52 - 57 °C
Initial boiling point and boiling range	97 - 98 °C at 1.013 hPa (slow decomposition)
Flash point	This information is not available.
Evaporation rate	no data available
Flammability (solid, gas)	This information is not available

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

Explosive limits

• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	13 hPa at 20 °C
Density	1,91 g/cm ³ at 20 °C
Vapour density	5,7 (air = 1)
Relative density	Information on this property is not available.

Solubility(ies)

Water solubility 6.600 g/l at 20 °C

Partition coefficient

n-octanol/water (log KOW)	0,99 (exp. Lit.)
Soil organic carbon/water (log KOC)	0,217 (ECHA)
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	>98 °C
Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Dust explosibility.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Violent reaction with: Alkali metals, Alcohols, Bases, Alkaline earth metal, Permanganates, Strong oxidiser

10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >98 °C.

10.5 Incompatible materials

iron

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	479 mg/kg	rat	TOXNET

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

vomiting, nausea

• If in eyes

Causes serious eye irritation

• If inhaled

Inhalation of dust may cause irritation of the respiratory system

• If on skin

causes skin irritation

Other information

Other adverse effects: Dyspnoea, Blood pressure drop, Unconsciousness, Fatigue, Cardiac arrhythmias, Liver and kidney damage

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate $\geq 99,5\%$, Ph.Eur., BP, USP

article number: K318

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
EC50	510 mg/l	daphnia magna	Lit.	24 h
LC50	1.720 mg/l	orfe (Leuciscus idus)	Lit.	48 h

12.2 Process of degradability

Theoretical Oxygen Demand: 0,1935 mg/mg
Theoretical Carbon Dioxide: 0,5322 mg/mg

Process	Degradation rate	Time
biotic/abiotic	4 %	14 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) 0,99
BCF 3,162 (3,162)

12.4 Mobility in soil

Henry's law constant $0 \text{ Pa m}^3/\text{mol}$ at 25 °C
The Organic Carbon normalised adsorption coefficient 0,217

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	2811
14.2	UN proper shipping name	TOXIC SOLID, ORGANIC, N.O.S.
	Hazardous ingredients	Chloral hydrate
14.3	Transport hazard class(es)	
	Class	6.1 (toxic substances)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	none (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	2811
	Proper shipping name	TOXIC SOLID, ORGANIC, N.O.S.
	Particulars in the transport document	UN2811, TOXIC SOLID, ORGANIC, N.O.S., (Chloral hydrate), 6.1, III, (E)
	Class	6.1
	Classification code	T2
	Packing group	III
	Danger label(s)	6.1
		
	Special provisions (SP)	274, 614, 802(ADN)
	Excepted quantities (EQ)	E1
	Limited quantities (LQ)	5 kg
	Transport category (TC)	2
	Tunnel restriction code (TRC)	E
	Hazard identification No	60
	Emergency Action Code	2X

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

• International Maritime Dangerous Goods Code (IMDG)

UN number	2811
Proper shipping name	TOXIC SOLID, ORGANIC, N.O.S.
Particulars in the shipper's declaration	UN2811, TOXIC SOLID, ORGANIC, N.O.S., (Chloral hydrate), 6.1, III
Class	6.1
Packing group	III
Danger label(s)	6.1



Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-A, S-A
Stowage category	A

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

UN number	2811
Proper shipping name	Toxic solid, organic, n.o.s.
Particulars in the shipper's declaration	UN2811, Toxic solid, organic, n.o.s., (Chloral hydrate), 6.1, III
Class	6.1
Packing group	III
	6.1



Special provisions (SP)	A3, A5, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 kg

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

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)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

Not listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

Not listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

Not listed.

- **Restrictions according to REACH, Annex XVII**

not listed

- **List of substances subject to authorisation (REACH, Annex XIV)**

not listed

- **Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)**

VOC content 100 %

- **Directive on industrial emissions (VOCs, 2010/75/EU)**

VOC content 100 %

- **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

National inventories

Substance is listed in the following national inventories:

- EINECS/ELINCS/NLP (Europe)

15.2 Chemical Safety Assessment

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

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate ≥ 99,5%, Ph.Eur., BP, USP

article number: **K318**

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 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
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
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
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)
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Chloral hydrate \geq 99,5%, Ph.Eur., BP, USP

article number: **K318**

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

Code	Text
H301	toxic if swallowed
H315	causes skin irritation
H319	causes serious eye irritation

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.