

Safety Data Sheet

according to Regulation (EC) No 1907/2006

14033-32 Cyclohexanone

Revision date: 17.04.2018

Product code: 1403332

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

14033-32 Cyclohexanone

CAS No: 108-94-1
Index No: 606-010-00-7
EC No: 203-631-1

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

Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
Street: Willstätterstr. 11
Place: D-40549 Düsseldorf
Telephone: +49 (0)211 5288-383
e-mail: SDS@hach.com
Internet: www.de.hach.com
Responsible Department: HACH LANGE Ltd.
5, Pacific Way
Salford Manchester M50 1DL - United Kingdom
Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
e-Mail: info-uk@hach.com

HACH LANGE Ltd.
Unit 1, Chestnut Road Western Industrial Estate
IRL-Dublin 12
Tel. +353 (0)1 4602522
e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:
Flammable liquid: Flam. Liq. 3
Acute toxicity: Acute Tox. 4
Acute toxicity: Acute Tox. 4
Acute toxicity: Acute Tox. 4
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Dam. 1

Hazard Statements:
Flammable liquid and vapour.
Harmful if inhaled.
Harmful in contact with skin.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.

2.2. Label elements**Regulation (EC) No. 1272/2008**

Signal word: Danger

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Pictograms:



Hazard statements

H226	Flammable liquid and vapour.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

no data available

SECTION 3: Composition/information on ingredients**3.1. Substances**

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
108-94-1	cyclohexanone			100 %
	203-631-1	606-010-00-7		
	Flam. Liq. 3, Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1; H226 H332 H312 H302 H315 H318			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Take off all contaminated clothing immediately.
Show this safety data sheet to the doctor in attendance.

After inhalation

Move to fresh air.
If not breathing, give artificial respiration. Consult a physician.

After contact with skin

Wash off immediately with plenty of water for at least 15 minutes.
If skin irritation persists, call a physician.

After contact with eyes

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.
Call a physician immediately.

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

irritant effects, headache, Nausea, Vomiting, Diarrhoea, Dizziness, narcosis Salivation.

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Carbon dioxide (CO₂), Alcohol-resistant foam, Dry powder

Unsuitable extinguishing media

No Limit

5.2. Special hazards arising from the substance or mixture

Combustible material

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixture with air. Pay attention to flashback.

Fire may liberate hazardous vapours.

In the event of fire the following can be released: Carbon dioxide (CO₂), Carbon monoxide

5.3. Advice for firefighters

In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Cool closed containers exposed to fire with water spray.

Additional information

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Only qualified personnel equipped with suitable protective equipment may intervene. Immediately evacuate personnel to safe areas.

Do not breathe vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

Risk of explosion.

6.3. Methods and material for containment and cleaning up

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local/national regulations (see section 13).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Use only in well-ventilated areas. Do not breathe vapours or spray mist.

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Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.
Take measures to prevent the build up of electrostatic charge.

Further information on handling

Observe label precautions.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep away from open flames, hot surfaces and sources of ignition. Store in a cool and shaded area.
Keep at temperatures between 10 and 25 °C.

Hints on joint storage

Incompatible with oxidizing agents.
Do not store together with Solvent, Acids and bases

Further information on storage conditions

Keep locked up or in an area accessible only to qualified or authorised persons.

7.3. Specific end use(s)

Laboratory chemicals
Reagent for analysis

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
108-94-1	Cyclohexanone	10	41		TWA (8 h)	WEL
		20	82		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
108-94-1	Cyclohexanone	cyclohexanol (creatinine)	2 mmol/mol	urine	Post shift

8.2. Exposure controls

Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

Wash hands before breaks and after work.
General industrial hygiene practice.

Eyeface protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.
Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

In case of full contact:

Glove material : butyl-rubber
Layer thickness: > 0,7 mm

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Break through time: 480 min

In case of contact through splashing:

Glove material : Viton (R)

Layer thickness: > 0,7 mm

Break through time: > 120 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves.

Skin protection

Avoid contact with skin, eyes and clothing.

Respiratory protection

Ensure adequate ventilation, especially in confined areas.

In the case of vapour formation use a respirator with an approved filter.

Recommended Filter type: A, Colour: brown

Environmental exposure controls

Do not flush into surface water or sanitary sewer system.

Prevent further leakage or spillage if safe to do so.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	liquid	
Colour:	colourless	
Odour:	no data available	
pH-Value (at 20 °C):		no data available

Changes in the physical state

Melting point:		-47 °C
Initial boiling point and boiling range:		155,6 °C
Sublimation point:		not applicable
Softening point:		no data available
Pour point:		no data available
:		no data available
Flash point:		44 °C

Flammability

Solid:		no data available
Gas:		no data available

Explosive properties

no data available

Lower explosion limits:		1,3 vol. %
Upper explosion limits:		9,4 vol. %
Ignition temperature:		420 °C

Auto-ignition temperature

Solid:		no data available
Gas:		no data available

Decomposition temperature: no data available

Oxidizing properties

no data available

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Vapour pressure: (at 38,7 °C)	13,3 hPa
Vapour pressure: (at 20 °C)	4,5 hPa
Density (at 20 °C):	0,948 g/cm ³
Bulk density:	no data available
Water solubility: (at 20 °C)	86 g/L
Solubility in other solvents	
no data available	
Partition coefficient:	log Pow 0,81
Viscosity / dynamic:	2,2 mPa·s
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	3,39
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available
9.2. Other information	
Solid content:	no data available
no data available	

SECTION 10: Stability and reactivity**10.1. Reactivity**

Vapour/air-mixtures are explosive at intense warming.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Reacts with the following substances:
Oxidizing agents, Acids and bases.

10.4. Conditions to avoid

Heat, flames and sparks.
Exposure to light.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Carbon monoxide, Carbon dioxide (CO₂)

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

LD₅₀/oral/rat = 1535 mg/kg; LD₅₀/oral/mouse = 1400 mg/kg
LC₅₀/inhalation/4 h/rat = 8000 ppm

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
108-94-1	cyclohexanone				
	oral	ATE 500 mg/kg			
	dermal	ATE 1100 mg/kg			
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			

Irritation and corrosivity

The product causes irritation of eyes, skin and mucous membranes.

Sensitising effects

May cause sensitisation by skin contact.

Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

STOT-single exposure

This information is not available.

STOT-repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

Specific effects in experiment on an animal

LD50/rabbit skin = 948 mg/kg

Practical experience**Observations relevant to classification**

Adverse human effects: mutagenic effects

Other observations

Risk of damages after often repeated exposure. Cough Skin irritation Shortness of breath Headache Vomiting

Further information

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information**12.1. Toxicity**

Acute fish toxicity = LD50 = 536 mg/l/48 h

12.2. Persistence and degradability

Inherent biodegradability = 87 % after 14 days (IUCLID)

Readily biodegradable.

12.3. Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0,81

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
108-94-1	cyclohexanone	0,81

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

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This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). no data available

12.6. Other adverse effects

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number: UN 1915
14.2. UN proper shipping name: CYCLOHEXANONE
14.3. Transport hazard class(es): 3
14.4. Packing group: III
 Hazard label: 3



Classification code: F1
 Limited quantity: 5 L
 Transport category: 3
 Hazard No: 30
 Tunnel restriction code: D/E

Other applicable information (land transport)

Excepted Quantities: E1

Inland waterways transport (ADN)**Other applicable information (inland waterways transport)**

Not tested

Marine transport (IMDG)

14.1. UN number: UN 1915
14.2. UN proper shipping name: CYCLOHEXANONE
14.3. Transport hazard class(es): 3

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14.4. Packing group:

III

Hazard label:

3



Special Provisions:

-

Limited quantity:

5 L

EmS:

F-E, S-D

Other applicable information (marine transport)

Excepted Quantities: E1

Air transport (ICAO-TI/IATA-DGR)**14.1. UN number:**

UN 1915

14.2. UN proper shipping name:

CYCLOHEXANONE

14.3. Transport hazard class(es):

3

14.4. Packing group:

III

Hazard label:

3



Limited quantity Passenger:

10 L

IATA-packing instructions - Passenger:

355

IATA-max. quantity - Passenger:

60 L

IATA-packing instructions - Cargo:

366

IATA-max. quantity - Cargo:

220 L

Other applicable information (air transport)

Excepted Quantities: E1

Passenger-LQ: Y344

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant

Other applicable information

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit, Hazard Class: 9, UN Number 3316, Package group II, EMS Code: F-A, S-P
 These transport data apply to the entire pack

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3: cyclohexanone

2010/75/EU (VOC):

100 % (948 g/l)

2004/42/EC (VOC):

100 % (948 g/l)

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Information according to 2012/18/EU
(SEVESO III):

P5c FLAMMABLE LIQUIDS

Additional information

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water contaminating class (D):

1 - slightly water contaminating

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**Changes**

Revision: 17.14.2018

Safety datasheet sections which have been updated: 2, 9, 11, 12

Revision: 28.02.2018

Safety datasheet sections which have been updated: 2, 11, 15

Revision: 30.06.2014

Safety datasheet sections which have been updated: 4-16

Relevant H and EUH statements (number and full text)

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H332	Harmful if inhaled.

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21066-69 ZincoVer 5 Zinc Reagent

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Product code: 2106669

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

1.1. Product identifier

21066-69 ZincoVer 5 Zinc Reagent

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

Use of the substance/mixture

Water analysis

1.3. Details of the supplier of the safety data sheet

Company name: HACH LANGE GmbH
 Street: Willstätterstr. 11
 Place: D-40549 Düsseldorf
 Telephone: +49 (0)211 5288-383
 e-mail: SDS@hach.com
 Internet: www.de.hach.com
 Responsible Department: HACH LANGE Ltd.
 5, Pacific Way
 Salford Manchester M50 1DL - United Kingdom
 Tel. +44 (0) 161 872 1487 * Fax +44 (0) 161 848 7324
 e-Mail: info-uk@hach.com

HACH LANGE Ltd.
 Unit 1, Chestnut Road Western Industrial Estate
 IRL-Dublin 12
 Tel. +353 (0)1 4602522
 e-Mail: info-ie@hach.com

1.4. Emergency telephone number:

Poison Control Center Mainz: Tel: +49 (0) 6131 19240 - 24 hour emergency service -

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Acute toxicity: Acute Tox. 3

Acute toxicity: Acute Tox. 4

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Reproductive toxicity: Repr. 1B

Specific target organ toxicity - single exposure: STOT SE 3

Hazardous to the aquatic environment: Aquatic Chronic 1

Hazard Statements:

Toxic in contact with skin.

Harmful if swallowed.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May damage fertility. May damage the unborn child.

May cause respiratory irritation.

Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

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Hazard components for labelling

Potassium borate
diboron trioxide; boric oxide
Potassium cyanide

Signal word: Danger**Pictograms:****Hazard statements**

H311 Toxic in contact with skin.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H319 Causes serious eye irritation.
H315 Causes skin irritation.
H360FD May damage fertility. May damage the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P264 Wash hands thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of water.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P308+P313 IF exposed or concerned: Get medical advice/attention.

Special labelling of certain mixtures

EUH032 Contact with acids liberates very toxic gas.

Additional advice on labelling

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

2.3. Other hazards

Toxic to Reproduction Category 2 Pregnant women or women of child-bearing age should not be exposed to this product. Harmful by inhalation, in contact with skin and if swallowed.
Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

SECTION 3: Composition/information on ingredients**3.2. Mixtures**

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
1332-77-0	Potassium borate			50-60 %
	215-575-5			
	Repr. 1B, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H360FD H315 H319 H335			
134-03-2	(+)-Sodium L-ascorbate			20-30 %
	205-126-1			
1303-86-2	diboron trioxide; boric oxide			15-25 %
	215-125-8	005-008-00-8		
	Repr. 1B; H360FD			
151-50-8	Potassium cyanide			3-7 %
	205-792-3	006-007-00-5		
	Acute Tox. 1, Acute Tox. 2, Acute Tox. 2, STOT SE 1, STOT RE 1, Aquatic Acute 1 (M-Factor = 10), Aquatic Chronic 1 (M-Factor = 10); H310 H330 H300 H370 H372 H400 H410 EUH032			

Full text of H and EUH statements: see section 16.

Further Information

This product contains substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
diboron trioxide; boric oxide

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off contaminated clothing and shoes immediately.
Show this safety data sheet to the doctor in attendance.

After inhalation

Move to fresh air. Call a physician immediately.

After contact with skin

Wash off immediately with soap and plenty of water. Take off all contaminated clothing immediately. Call a physician immediately.

After contact with eyes

Rinse immediately with plenty of water for at least 15 minutes.
Consult a physician. Show this safety data sheet to the doctor in attendance.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.
Call a physician immediately. Show this safety data sheet to the doctor in attendance.

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

May cause skin irritation. May cause eye irritation.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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Suitable extinguishing media

Dry powder

Unsuitable extinguishing mediaCarbon dioxide (CO₂)**5.2. Special hazards arising from the substance or mixture**

Fire may liberate hazardous vapours.

In the event of fire the following can be released: Cyanides, Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.

Dust may form explosive mixture in air.

5.3. Advice for firefighters

In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

In the event of fire, wear self-contained breathing apparatus.

In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

Suppress (knock down) gases/vapours/mists with a water spray jet.

Additional information

Prevent fire extinguishing water from contaminating surface water or the ground water system. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Only qualified personnel equipped with suitable protective equipment may intervene. Immediately evacuate personnel to safe areas.

Do not breathe vapours, mist or gas.

Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local/national regulations (see section 13).

6.4. Reference to other sections

13. Disposal considerations

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Use only in well-ventilated areas.

Avoid contact with skin and eyes.

Do not breathe vapours/dust.

Wash thoroughly after handling.

Advice on protection against fire and explosion

See also section 5

Further information on handling

Observe label precautions.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep containers dry and tightly closed to avoid moisture absorption and contamination.

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Hints on joint storage

Do not store near acids.

Further information on storage conditions

Keep locked up or in an area accessible only to qualified or authorised persons.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
1303-86-2	Diboron trioxide	-	10		TWA (8 h)	WEL
		-	20		STEL (15 min)	WEL
151-50-8	Potassium cyanide (as cyanide)	-	5		TWA (8 h)	WEL

Additional advice on limit values

None known.

8.2. Exposure controls**Appropriate engineering controls**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Protective and hygiene measures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Eye/face protection

Safety glasses with side-shields

Hand protection

Use barrier skin cream.

Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374. In full contact:

Gloves material: Viton, Layer thickness: 0.70 mm, Breakthrough time: >480 min. In splash contact: Glove

material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: > 30 min

Skin protection

Avoid contact with skin, eyes and clothing.

Respiratory protection

Avoid breathing dust or vapour.

Use with local exhaust ventilation.

Environmental exposure controls

Do not flush into surface water or sanitary sewer system.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:

solid

Colour:

pink

Odour:

odourless

pH-Value (at 20 °C):

8,7 (5 % solution)

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Changes in the physical state

Melting point:	155 °C
Initial boiling point and boiling range:	not applicable
Sublimation point:	no data available
Softening point:	no data available
Pour point:	not applicable
:	no data available
Flash point:	not applicable
Sustaining combustion:	No data available

Flammability

Solid:	not applicable
Gas:	not applicable

Explosive properties

no data available

Lower explosion limits:	no data available
Upper explosion limits:	no data available
Ignition temperature:	no data available

Auto-ignition temperature

Solid:	no data available
Gas:	no data available

Decomposition temperature:	no data available
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Oxidizing properties

no data available

Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,83 g/cm ³
Bulk density:	no data available
Water solubility:	soluble

Solubility in other solvents

Incompatible with acids.

Partition coefficient:	not applicable
Viscosity / dynamic:	not applicable
Viscosity / kinematic:	not applicable
Flow time:	not applicable
Vapour density:	not applicable
Evaporation rate:	not applicable
Solvent separation test:	not applicable
Solvent content:	not applicable

9.2. Other information

Solid content:	no data available
no data available	

SECTION 10: Stability and reactivity**10.1. Reactivity**

Reactivity Hazard: Acids

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10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Reacts with the following substances: Acids

10.4. Conditions to avoid

Product is sensitive to light and moisture.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Thiocyanates can develop poisonous gas in contact with strong acids.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

LD50/oral/rat = 383 mg/kg (Information given is based on tests on the mixture itself.)

Toxic in contact with skin.

Harmful if swallowed.

Harmful by inhalation.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1332-77-0	Potassium borate				
	oral	LD50 mg/kg	3690	ratte	
1303-86-2	diboron trioxide; boric oxide				
	oral	LD50 mg/kg	3163	Mice	GESTIS
151-50-8	Potassium cyanide				
	oral	LD50	5 mg/kg	rat	
	dermal	LD50 mg/kg	14,29	rabbits	ECHA
	inhalation (4 h) vapour	LC50 mg/l	0,051	rat	
	inhalation (4 h) aerosol	LC50 mg/l	0,051	rat	

Irritation and corrosivity

The product causes irritation of eyes, skin and mucous membranes.

Carcinogenic/mutagenic/toxic effects for reproduction

H360 - May damage fertility or the unborn child.

STOT-single exposure

The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Specific effects in experiment on an animal

LD50/oral/rat = 383 mg/kg

Further information

Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety

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practice.

SECTION 12: Ecological information

12.1. Toxicity

No data is available on the product itself. Information given is based on data on the components and the ecotoxicology of similar products.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
1303-86-2	diboron trioxide; boric oxide					
	Acute crustacea toxicity	EC50 490 mg/l	370 - 48 h	Daphnia Magna	IUCLID	
151-50-8	Potassium cyanide					
	Acute fish toxicity	LC50 mg/l	0,068 96 h			
	Acute crustacea toxicity	EC50 mg/l	0,25 48 h			

12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

No data is available on the product itself.

12.4. Mobility in soil

No data is available on the product itself.

12.5. Results of PBT and vPvB assessment

No data is available on the product itself.

12.6. Other adverse effects

Environmental Effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

In accordance with local and national regulations.

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

Contaminated packaging

Dispose of as unused product.

The hazard and precautionary statements displayed on the label also apply to any residues left in the container.

SECTION 14: Transport information

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Land transport (ADR/RID)

14.1. UN number:	UN 1588
14.2. UN proper shipping name:	Cyanides, inorganic, solid, n.o.s. (Potassium cyanide mixture)
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1
	
Classification code:	T5
Special Provisions:	47 274
Limited quantity:	5 kg
Excepted quantity:	E1
Transport category:	2
Hazard No:	60
Tunnel restriction code:	E


Inland waterways transport (ADN)**Other applicable information (inland waterways transport)**

Not tested

Marine transport (IMDG)

14.1. UN number:	UN 1588
14.2. UN proper shipping name:	Cyanides, inorganic, solid, n.o.s. (Potassium Cyanide mixture)
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1
	
Marine pollutant:	P
Special Provisions:	47, 223, 274
Limited quantity:	5 kg
Excepted quantity:	E1
EmS:	F-A, S-A

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 1588
14.2. UN proper shipping name:	Cyanides, inorganic, solid, n.o.s. (Potassium Cyanide mixture)
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	III
Hazard label:	6.1
	
Special Provisions:	A3 A13
Limited quantity Passenger:	10 kg
Passenger LQ:	Y645
Excepted quantity:	E1
IATA-packing instructions - Passenger:	670
IATA-max. quantity - Passenger:	100 kg

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IATA-packing instructions - Cargo:

677

IATA-max. quantity - Cargo:

200 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: yes



Danger releasing substance: Potassium cyanide

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant

Other applicable information

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit, Hazard Class: 9, UN Number 3316, Package group II, EMS Code: F-A, S-P

SECTION 15: Regulatory information

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

EU regulatory information

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
diboron trioxide; boric oxide

Restrictions on use (REACH, annex XVII):

Entry 30: diboron trioxide; boric oxide

National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water contaminating class (D):

3 - highly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

Revision: 16.07.2019

Safety datasheet sections which have been updated: 2, 11, 15, 16

Revision: 13.02.2017

Safety datasheet sections which have been updated: 8, 10, 11

Revision: 1.02.2017

Safety datasheet sections which have been updated: 11

Revision: 11.04.2016

Safety datasheet sections which have been updated: 3

Revision: 15.04.2015

Safety datasheet sections which have been updated: 2, 11

Revision: 03.01.2014

Safety datasheet sections which have been updated: 2-16

Revision: 08.11.2012

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Safety datasheet sections which have been updated: 1, 2, 3, 15

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 3; H311	Calculation method
Acute Tox. 4; H302	Calculation method
Acute Tox. 4; H332	Calculation method
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Repr. 1B; H360FD	Calculation method
STOT SE 3; H335	Calculation method
Aquatic Chronic 1; H410	Calculation method

Relevant H and EUH statements (number and full text)

H300	Fatal if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360FD	May damage fertility. May damage the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH032	Contact with acids liberates very toxic gas.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)