

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**282-32H Potassium Hydroxide Standard Solution 8.0N**

Revision date: 23.04.2018

Product code: 28232H

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

282-32H Potassium Hydroxide Standard Solution 8.0N

**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:

Substance or mixture corrosive to metals: Met. Corr. 1

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1A

Serious eye damage/eye irritation: Eye Dam. 1

Hazard Statements:

May be corrosive to metals.

Harmful if swallowed.

Causes severe skin burns and eye damage.

Causes serious eye damage.

**2.2. Label elements****Regulation (EC) No. 1272/2008****Hazard components for labelling**

potassium hydroxide; caustic potash

**Signal word:** Danger**Pictograms:**

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#### Hazard statements

- H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.

#### Precautionary statements

- P234 Keep only in original packaging.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor.

#### Additional advice on labelling

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

#### 2.3. Other hazards

None known.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
7732-18-5	Water			55-65 %
	231-791-2			
1310-58-3	potassium hydroxide; caustic potash			35-45 %
	215-181-3	019-002-00-8		
	Acute Tox. 4, Skin Corr. 1A; H302 H314			

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. Consult a physician. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### After contact with skin

Wash off immediately with plenty of water for at least 15 minutes. Consult a physician.  
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. Show this safety data sheet to the doctor in attendance.

#### After contact with eyes

Rinse immediately with plenty of water for at least 15 minutes. Call a physician immediately.

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#### After ingestion

Do NOT induce vomiting. Drink 1 or 2 glasses of water.  
Never give anything by mouth to an unconscious person.  
Call a physician immediately.

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

Irritation and corrosion

#### 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.

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

The product itself does not burn.

### 5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.  
In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

#### 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.

### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

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

Soak up with inert absorbent material and dispose of as hazardous waste.

### 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. Do not breathe vapours or spray mist. Use only in well-ventilated areas.

#### Advice on protection against fire and explosion

See also section 5

#### Further information on handling

Observe label precautions.  
Avoid contact with skin, eyes and clothing.

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

#### Requirements for storage rooms and vessels

Keep away from heat. Keep container tightly closed in a dry and well-ventilated place.

#### 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.

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**7.3. Specific end use(s)**

Reagent for analysis, Standard solution

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

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
1310-58-3	Potassium hydroxide	-	2		STEL (15 min)	WEL

**Additional advice on limit values**

None known.

**8.2. Exposure controls****Appropriate engineering controls**

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

**Protective and hygiene measures**

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: &gt;480 min. In splash contact: Glove

material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: &gt; 30 min

Consult your supplier if the material is to be used for special applications such as in the food industry or for hygiene, medical or surgical end-use.

**Skin protection**

Avoid contact with skin, eyes and clothing.

**Respiratory protection**

Ensure adequate ventilation, especially in confined areas.

Breathing apparatus only if aerosol or dust is formed.

Recommended Filter type: ABEK-filter

**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:	liquid	
Colour:	colourless	
Odour:	irritating	
pH-Value (at 20 °C):		14

**Changes in the physical state**

Melting point:	no data available
Initial boiling point and boiling range:	> 100 °C
Sublimation point:	no data available
Softening point:	no data available
Pour point:	not applicable

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:	no data available
Flash point:	not applicable
<b>Flammability</b>	
Solid:	not applicable
Gas:	not applicable
<b>Explosive properties</b>	
not applicable	
Lower explosion limits:	no data available
Upper explosion limits:	no data available
Ignition temperature:	no data available
<b>Auto-ignition temperature</b>	
Solid:	no data available
Gas:	no data available
Decomposition temperature:	no data available
<b>Oxidizing properties</b>	
no data available	
Vapour pressure: (at 100 °C)	450,5 hPa
Vapour pressure:	no data available
Density (at 20 °C):	1,3 g/cm <sup>3</sup>
Bulk density:	no data available
Water solubility:	soluble
<b>Solubility in other solvents</b>	
no data available	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available
<b>9.2. Other information</b>	
Solid content:	no data available
no data available	

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

Reacts with the following substances: Acids, Metals, Organic peroxides  
Keep away from combustible material.

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**10.4. Conditions to avoid**

Extremes of temperature and direct sunlight. Decomposes on heating.

**10.5. Incompatible materials**

Acids, Alcohols, Metals, Peroxides

**10.6. Hazardous decomposition products**

Contact with metals liberates hydrogen gas.

**SECTION 11: Toxicological information**
**11.1. Information on toxicological effects**
**Toxicokinetics, metabolism and distribution**

No toxicology information is available.

**Acute toxicity**

No data is available on the product itself.

**ATEmix calculated**

ATE (oral) 964,9 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1310-58-3	potassium hydroxide; caustic potash				
	oral	LD50 333 mg/kg	Rat	Merck	

**Irritation and corrosivity**

Causes burns.

**Sensitising effects**

No known effect.

**Carcinogenic/mutagenic/toxic effects for reproduction**

Contains no ingredient listed as a carcinogen

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

No aspiration toxicity classification

**Specific effects in experiment on an animal**

No toxicology information is available.

**Additional information on tests**

Harmful by ingestion. Gastrointestinal discomfort, Vomiting

**Practical experience**
**Observations relevant to classification**

None known.

**Other observations**

None known.

**Further information**

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

**SECTION 12: Ecological information**

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**12.1. Toxicity**

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
1310-58-3	potassium hydroxide; caustic potash					
	Acute fish toxicity	LC50	80 mg/l	96 h	Gambusia affinis	IUCLID

**12.2. Persistence and degradability**

The methods for determining biodegradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

no data available

**12.4. Mobility in soil**

no data available

**12.5. Results of PBT and vPvB assessment**

no data available

**12.6. Other adverse effects**

no data available

**Further information**

no data available

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Advice on disposal**

In accordance with local and national regulations.

**Waste disposal number of waste from 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

**Waste disposal number of 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

**Waste disposal number of 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)**

<b>14.1. UN number:</b>	UN1814
<b>14.2. UN proper shipping name:</b>	Potassium hydroxide solution
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8

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Classification code: C5  
Limited quantity: 1 L  
Excepted quantity: E2  
Transport category: 2  
Hazard No: 80  
Tunnel restriction code: E

#### Other applicable information (land transport)

Excepted Quantities: E2

#### Inland waterways transport (ADN)

##### Other applicable information (inland waterways transport)

Not tested

#### Marine transport (IMDG)

**14.1. UN number:** UN1814  
**14.2. UN proper shipping name:** POTASSIUM HYDROXIDE SOLUTION  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8



Special Provisions: -  
Limited quantity: 1 L  
Excepted quantity: E2  
EmS: F-A, S-B

#### Other applicable information (marine transport)

Excepted Quantities: E2

#### Air transport (ICAO-TI/IATA-DGR)

**14.1. UN number:** UN1814  
**14.2. UN proper shipping name:** POTASSIUM HYDROXIDE SOLUTION  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8



Special Provisions: A3 A803  
Limited quantity Passenger: 0.5 L  
Passenger LQ: Y840  
Excepted quantity: E2  
IATA-packing instructions - Passenger: 851  
IATA-max. quantity - Passenger: 1 L  
IATA-packing instructions - Cargo: 855  
IATA-max. quantity - Cargo: 30 L

#### Other applicable information (air transport)

Excepted Quantities: E2



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Passenger-LQ: Y840

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: no  
Danger releasing substance: Not relevant

**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

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

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).  
Water contaminating class (D): 1 - slightly 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: 23.04.2018  
Safety datasheet sections which have been updated: 3, 12, 13, 16  
Revision: 24.09.2015  
This data sheet contains changes from the previous version in section(s): 11  
Revision: 19.05.2015  
This data sheet contains changes from the previous version in section(s): 2, 4, 11  
Revision: 23.01.2013  
This data sheet contains changes from the previous version in section(s): 4,6,7,8, 911,12,14,

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

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data
Acute Tox. 4; H302	Calculation method
Skin Corr. 1A; H314	Calculation method
Eye Dam. 1; H318	Calculation method

**Relevant H and EUH statements (number and full text)**

H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.

**Further Information**

The information is based on present level of our knowledge. It does not, however, give assurances 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.)*

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

424-32 Hardness 1 Buffer

**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:

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Causes skin irritation.

Causes serious eye irritation.

Harmful to aquatic life with long lasting effects.

**2.2. Label elements****Regulation (EC) No. 1272/2008****Hazard components for labelling**

2-amino-2-methylpropanol

**Signal word:** Warning**Pictograms:**

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#### Hazard statements

- H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

- P273 Avoid release to the environment.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 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.  
 P312 Call a POISON CENTER/doctor if you feel unwell.  
 P501 Dispose of contents/container in accordance with local regulation.

#### 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

### 3.2. Mixtures

#### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
124-68-5	2-amino-2-methylpropanol			50-60 %
	204-709-8	603-070-00-6		
	Eye Irrit. 2, Skin Irrit. 2, Aquatic Chronic 3; H319 H315 H412			
7732-18-5	Water			35-45 %
	231-791-2			
64-19-7	acetic acid ... %			1-10 %
	200-580-7	607-002-00-6		
	Flam. Liq. 3, Skin Corr. 1A; H226 H314			
14402-88-1	Diaminoethane tetra-acetic acid Magnesium-disodium salt			<1 %
	238-372-3			

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

#### After inhalation

- Move to fresh air.  
 If symptoms persist, call a physician.

#### After contact with skin

- Wash off immediately with plenty of water for at least 15 minutes.

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Take off all contaminated clothing immediately.  
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. Consult a physician.

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

irritant effects

#### **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. The product itself does not burn.

#### **Unsuitable extinguishing media**

No Limit

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

Fire may liberate hazardous vapours.

### **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.

#### **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.

### **6.2. Environmental precautions**

Do not flush into surface water or sanitary sewer system.

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

Soak up with inert absorbent material and dispose of as hazardous waste.

### **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.

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

None known.

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See also section 5

#### Further information on handling

Observe label precautions.

Avoid contact with skin, eyes and clothing.

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

##### Requirements for storage rooms and vessels

Keep in a dry, cool place.

##### Hints on joint storage

Do not store together with Oxidizing agents

#### 7.3. Specific end use(s)

Reagent for analysis

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits (EH40)

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
64-19-7	Acetic acid	10	25		TWA (8 h)	EU
		15	37		STEL (15 min)	EU

#### 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.

Wash hands before breaks and after work.

General industrial hygiene practice.

#### 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: &gt;480 min. In splash contact: Glove

material: nitrile rubber, Layer thickness 0,20 mm, Breakthrough time: &gt; 30 min

Consult your supplier if the material is to be used for special applications such as in the food industry or for hygiene, medical or surgical end-use.

#### Skin protection

Remove and wash contaminated clothing before re-use.

#### Respiratory protection

Breathing apparatus only if aerosol or dust is formed.

Recommended Filter type: ABEK-filter

#### Environmental exposure controls

Should not be released into the environment.

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

Physical state:	liquid
Colour:	yellow
Odour:	vinegar-like
pH-Value (at 20 °C):	10 (2 % solution)

**Changes in the physical state**

Melting point:	not applicable
Initial boiling point and boiling range:	104,5 °C
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	no data available
:	no data available
Flash point:	>97,2 °C

**Flammability**

Solid:	no data available
Gas:	no data available

**Explosive properties**

no data available

Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	no data available

**Auto-ignition temperature**

Solid:	no data available
Gas:	no data available

Decomposition temperature: no data available

**Oxidizing properties**

no data available

Vapour pressure:	no data available
Vapour pressure:	no data available

Density (at 20 °C):	1,033 g/cm <sup>3</sup>
Bulk density:	not applicable
Water solubility: (at 20 °C)	completely soluble

**Solubility in other solvents**

no data available

Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate: (at 20 °C)	0,36
Solvent separation test:	no data available

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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

Reactivity Hazard: Oxidizing agents

#### 10.2. Chemical stability

The product is chemically stable.

#### 10.3. Possibility of hazardous reactions

Reacts with the following substances: Oxidizing agents

#### 10.4. Conditions to avoid

Extremes of temperature and direct sunlight.

#### 10.5. Incompatible materials

None known.

#### 10.6. Hazardous decomposition products

Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute toxicity

No data is available on the product itself.

CAS No	Chemical name					
	Exposure route	Dose	Species	Source	Method	
124-68-5	2-amino-2-methylpropanol					
	oral	LD50 mg/kg	2900	Rat	IUCLID	
	dermal	LD50 mg/kg	> 2000	Rabbit	IUCLID	
64-19-7	acetic acid ... %					
	oral	LD50 mg/kg	3310	Rat	GESTIS	

##### Irritation and corrosivity

Irritating to eyes and skin.

##### Sensitising effects

No known effect.

##### Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

##### STOT-single exposure

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

##### STOT-repeated exposure

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

##### Aspiration hazard

No aspiration toxicity classification

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#### Specific effects in experiment on an animal

No data is available on the product itself.

#### 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

No data is available on the product itself.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
124-68-5	2-amino-2-methylpropanol					
	Acute fish toxicity	LC50	190 mg/l	96 h	Lepomis macrochirus	IUCLID
	Acute algae toxicity	ErC50	520 mg/l	72 h	Desmodesmus subspicatus	
64-19-7	acetic acid ... %					
	Acute crustacea toxicity	EC50	65 mg/l	48 h	Daphnia magna	Janssen et al

### 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.

#### Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
124-68-5	2-amino-2-methylpropanol	-0,74
64-19-7	acetic acid ... %	-0,17

### 12.4. Mobility in soil

no data available

### 12.5. Results of PBT and vPvB assessment

no data available

### 12.6. Other adverse effects

Do not flush into surface water or sanitary sewer system.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Advice on disposal

In accordance with local and national regulations.

#### Waste disposal number of waste from 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

#### Waste disposal number of 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

#### Contaminated packaging

Dispose of as unused product.



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

Not subject to transport regulations.

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

Not tested

**Marine transport (IMDG)****Other applicable information (marine transport)**

Not subject to transport regulations.

**Air transport (ICAO-TI/IATA-DGR)****Other applicable information (air transport)**

Not subject to transport regulations.

**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

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

Water contaminating class (D): 2 - clearly 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: 23.04.2018

Safety datasheet sections which have been updated: 8, 11, 16

Revision: 23.04.2015

Safety datasheet sections which have been updated: 2

Revision: 25.02.2015

Safety datasheet sections which have been updated: 2, 10

Revision: 06.11.2013

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

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Aquatic Chronic 3; H412	Calculation method

**Relevant H and EUH statements (number and full text)**

H226 Flammable liquid and vapour.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.

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H319 Causes serious eye irritation.  
H412 Harmful to aquatic life with long lasting effects.

**Further Information**

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

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

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### 425-32 Hardness 2 Solution

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

### 1.1. Product identifier

425-32 Hardness 2 Solution

### 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:

Substance or mixture corrosive to metals: Met. Corr. 1

Flammable liquid: Flam. Liq. 3

Skin corrosion/irritation: Skin Corr. 1

Serious eye damage/eye irritation: Eye Dam. 1

Respiratory or skin sensitisation: Skin Sens. 1

Carcinogenicity: Carc. 2

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

May be corrosive to metals.

Flammable liquid and vapour.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

### 2.2. Label elements

#### Regulation (EC) No. 1272/2008

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#### Hazard components for labelling

hydroxylammonium chloride; hydroxylamine hydrochloride  
propan-2-ol; isopropyl alcohol; isopropanol

**Signal word:** Danger

#### Pictograms:



#### Hazard statements

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take action to prevent static discharges.
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.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310	Immediately call a POISON CENTER/doctor.

#### Additional advice on labelling

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

#### 2.3. Other hazards

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

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#### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
57-55-6	1,2-Propanediol			90-100 %
	200-338-0			
5470-11-1	hydroxylammonium chloride; hydroxylamine hydrochloride			1-10 %
	226-798-2	612-123-00-2		
	Met. Corr. 1, Carc. 2, Acute Tox. 4, Acute Tox. 4, STOT RE 2, Eye Irrit. 2, Skin Irrit. 2, Skin Sens. 1, Aquatic Acute 1; H290 H351 H312 H302 H373 ** H319 H315 H317 H400			
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			< 5 %
	200-661-7	603-117-00-0		
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336			
3147-14-6	Calmagite			< 1 %
	221-563-0			
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H315 H319 H335			

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. Consult a physician for severe cases.

###### After contact with skin

Wash off with soap and water. 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. Show this safety data sheet to the doctor in attendance.

###### After ingestion

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Show this safety data sheet to the doctor in attendance.

Never give anything by mouth to an unconscious person.

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

Irritation and corrosion. May produce an allergic reaction. Can be absorbed through skin.

##### 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.  
Water, Dry powder, Carbon dioxide (CO<sub>2</sub>), Alcohol-resistant foam

###### Unsuitable extinguishing media

No Limit

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

Fire may liberate hazardous vapours.  
Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Acid chlorides

#### **5.3. Advice for firefighters**

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

#### **Additional information**

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

### **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.

#### **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**

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

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

None known.  
See also section 5 Observe label precautions.

##### **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.

##### **Hints on joint storage**

Incompatible with oxidizing agents.

#### **7.3. Specific end use(s)**

Reagent for analysis

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

#### **8.1. Control parameters**

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#### Exposure limits (EH40)

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
67-63-0	Propan-2-ol	400	999		TWA (8 h)	WEL
		500	1250		STEL (15 min)	WEL
57-55-6	Propane-1,2-diol, particulates	-	10		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.

Wash hands before breaks and after work.

General industrial hygiene practice.

##### 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

Consult your supplier if the material is to be used for special applications such as in the food industry or for hygiene, medical or surgical end-use.

##### Skin protection

Avoid contact with skin, eyes and clothing.

##### Respiratory protection

Provide adequate ventilation.

Avoid breathing dust or vapour.

Breathing apparatus needed only when aerosol or mist is formed.

Recommended Filter type: ABEK-filter

##### 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:	liquid
Colour:	dark red
Odour:	pleasant, like fruit
pH-Value (at 20 °C):	1,09

##### Changes in the physical state

Melting point:	not applicable
Initial boiling point and boiling range:	118 °C
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	no data available

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:	no data available
Flash point:	25,7 °C
<b>Flammability</b>	
Solid:	no data available
Gas:	no data available
<b>Explosive properties</b>	
not applicable	
Lower explosion limits:	no data available
Upper explosion limits:	no data available
Ignition temperature:	no data available
<b>Auto-ignition temperature</b>	
Solid:	no data available
Gas:	no data available
Decomposition temperature:	no data available
<b>Oxidizing properties</b>	
no data available	
Vapour pressure:	no data available
Density (at 20 °C):	1,01 g/cm <sup>3</sup>
Bulk density:	not applicable
Water solubility: (at 20 °C)	soluble
<b>Solubility in other solvents</b>	
no data available	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
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
May be corrosive to metals. Aluminium 0,001 in/yr Mild steel: 0,288 in/yr	

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

May be corrosive to metals.

**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

Reacts with the following substances: Oxidizing agents



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#### 10.4. Conditions to avoid

Heat, flames and sparks. To avoid thermal decomposition, do not overheat.

#### 10.5. Incompatible materials

None known.

#### 10.6. Hazardous decomposition products

Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Acid chlorides

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Toxicokinetics, metabolism and distribution

No toxicology information is available.

##### Acute toxicity

No data is available on the product itself.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
57-55-6	1,2-Propanediol				
	oral	LD50 mg/kg	20000	rat	Toxicology and Appli
	dermal	LD50 mg/kg	20800	rabbit	Raw Material Data Ha
5470-11-1	hydroxylammonium chloride; hydroxylamine hydrochloride				
	oral	LD50 mg/kg	141	rat	
	dermal	ATE mg/kg	1100		
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol				
	oral	LD50 mg/kg	5045	rat	RTECS
	dermal	LD50 mg/kg	12800	rabbit	
	inhalation (4 h) vapour	LC50	46,5 mg/l	rat	

#### Irritation and corrosivity

Causes skin and eye burns.

#### Sensitising effects

May cause allergic skin reaction.

#### Carcinogenic/mutagenic/toxic effects for reproduction

H351 - Suspected of causing cancer.

#### STOT-single exposure

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

#### STOT-repeated exposure

H373 - May cause damage to organs through prolonged or repeated exposure.

#### Aspiration hazard

No aspiration toxicity classification

#### Specific effects in experiment on an animal

No toxicology information is available.

#### Additional information on tests

None known.

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**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**

No data is available on the product itself.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
57-55-6	1,2-Propanediol					
	Acute fish toxicity	LC50 mg/l	51600	96 h	Oncorhynchus mykiss (rainbow trout)	OECD 203
	Acute crustacea toxicity	EC50 mg/l	34400	48 h	Daphnia magna (Water flea)	Information taken from reference works and the literature.
5470-11-1	hydroxylammonium chloride; hydroxylamine hydrochloride					
	Acute fish toxicity	LC50 mg/l	1-10	96 h	Leuciscus idus (Golden orfe)	
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol					
	Acute fish toxicity	LC50 mg/l	1400	96 h	Lepomis macrochirus (Bluegill sunfish)	
	Acute algae toxicity	ErC50 mg/l	> 1000	72 h	Pseudokirchneriella subcapitata (green algae)	IUCLID
	Acute crustacea toxicity	EC50 mg/l	13299	48 h	Daphnia magna (Water flea)	IUCLID

**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.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
57-55-6	1,2-Propanediol	-0,92

**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**

Discharge into the environment must be avoided.

**SECTION 13: Disposal considerations**
**13.1. Waste treatment methods**
**Advice on disposal**

In accordance with local and national regulations.

**Waste disposal number of waste from residues/unused products**

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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

**Waste disposal number of 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

**Waste disposal number of 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 2924  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, CORROSIVE, N.O.S. (<10% propan-2-ol; isopropyl alcohol; isopropanol, hydroxylammonium chloride; hydroxylamine hydrochloride)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III

Hazard label: 3+8



Classification code: FC  
Special Provisions: 274  
Limited quantity: 5 L  
Excepted quantity: E1  
Transport category: 3  
Hazard No: 38  
Tunnel restriction code: D/E

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

Not tested

**Marine transport (IMDG)**

**14.1. UN number:** UN 2924  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, CORROSIVE, N.O.S.(10% Isopropanol-/hydroxylamine hydrochloride solution)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III

Hazard label: 3+8



Marine pollutant: --  
Special Provisions: 223, 274  
Limited quantity: 5 L

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Excepted quantity: E1  
EmS: F-E, S-C

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number:** UN 2924  
**14.2. UN proper shipping name:** FLAMMABLE LIQUID, CORROSIVE, N.O.S.(10% Isopropanol-/hydroxylamine hydrochloride solution)  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III  
Hazard label: 3+8



Special Provisions: A3 A803  
Limited quantity Passenger: 1 L  
Passenger LQ: Y342  
Excepted quantity: E1  
IATA-packing instructions - Passenger: 354  
IATA-max. quantity - Passenger: 5 L  
IATA-packing instructions - Cargo: 365  
IATA-max. quantity - Cargo: 60 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: yes



Danger releasing substance: hydroxylammonium chloride; hydroxylamine hydrochloride

**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****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): 2 - clearly water contaminating

**15.2. Chemical safety assessment**

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

**SECTION 16: Other information****Changes**

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Revision: 23.04.2018

Safety datasheet sections which have been updated: 8, 11, 15, 16

Revision: 16.03.2017

Safety datasheet sections which have been updated: 2, 4, 11

Revision: 27.05.2015

Safety datasheet sections which have been updated: 2, 4, 11

Revision: 06.11.2013

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

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data
Flam. Liq. 3; H226	On basis of test data
Skin Corr. 1; H314	On basis of test data
Eye Dam. 1; H318	On basis of test data
Skin Sens. 1; H317	Calculation method
Carc. 2; H351	Calculation method
STOT RE 2; H373	Calculation method

#### Relevant H and EUH statements (number and full text)

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

#### Further Information

The information is based on present level of our knowledge. It does not, however, give assurances 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.)*

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**426-32 Hardness 3 Solution**

Revision date: 23.04.2018

Product code: 42632

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

426-32 Hardness 3 Solution

**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**

This mixture is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

**2.2. Label elements****Additional advice on labelling**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**2.3. Other hazards**

None known.

**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	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
7732-18-5	Water			70-80 %
	231-791-2			
57-55-6	1,2-Propanediol			20-30 %
	200-338-0			
-	hydrochloric acid ... %			< 1 %
	231-595-7	017-002-01-X		
	Skin Corr. 1B, STOT SE 3; H314 H335			

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.

**After inhalation**

Move to fresh air.

If symptoms persist, call a physician.

**After contact with skin**

Wash off immediately with plenty of water.

In the case of skin irritation or allergic reactions see 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.

Call a physician immediately.

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

No known effect.

**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. The product itself does not burn.

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

Fire may liberate hazardous vapours.

**5.3. Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

**Additional information**

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

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regulations.

#### SECTION 6: Accidental release measures

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

Use personal protective equipment.

##### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

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

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

##### 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.

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

See also section 5

###### **Further information on handling**

Avoid contact with skin, eyes and clothing.

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

###### **Requirements for storage rooms and vessels**

Keep in a dry, cool place.

###### **Hints on joint storage**

None known.

##### 7.3. Specific end use(s)

Reagent for analysis

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

##### 8.1. Control parameters

###### **Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
7647-01-0	Hydrogen chloride (gas and aerosol mists)	1	2		TWA (8 h)	WEL
		5	8		STEL (15 min)	WEL
57-55-6	Propane-1,2-diol, particulates	-	10		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.

Wash hands before breaks and after work.



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#### 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

Remove and wash contaminated clothing before re-use.

#### Respiratory protection

Breathing apparatus only if aerosol or dust is formed.

Recommended Filter type: ABEK-filter

#### Environmental exposure controls

Should not be released into the environment.

## SECTION 9: Physical and chemical properties

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

Physical state:	liquid	
Colour:	colourless, clear	
Odour:	odourless	
pH-Value (at 20 °C):		5

#### Changes in the physical state

Melting point:	not applicable
Initial boiling point and boiling range:	> 100 °C
Sublimation point:	not applicable
Softening point:	not applicable
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

not applicable

Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	not applicable

#### Auto-ignition temperature

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not applicable
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#### Oxidizing properties

not applicable

Vapour pressure:	no data available
Vapour pressure:	no data available
Density (at 20 °C):	1,026 g/cm <sup>3</sup>

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Bulk density:	not applicable
Water solubility: (at 20 °C)	soluble
<b>Solubility in other solvents</b>	
soluble	
Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Flow time:	no data available
Vapour density:	no data available
Evaporation rate:	no data available
Solvent separation test:	no data available
Solvent content:	no data available

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

Solid content:	not applicable
no data available	

### **SECTION 10: Stability and reactivity**

#### **10.1. Reactivity**

No dangerous reaction known under conditions of normal use.

#### **10.2. Chemical stability**

Stable under recommended storage conditions.

#### **10.3. Possibility of hazardous reactions**

Hazardous polymerisation does not occur.

#### **10.4. Conditions to avoid**

None known.

#### **10.5. Incompatible materials**

None known.

#### **10.6. Hazardous decomposition products**

No hazardous decomposition products are known.

#### **Further information**

None known.

### **SECTION 11: Toxicological information**

#### **11.1. Information on toxicological effects**

##### **Acute toxicity**

No data is available on the product itself.

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
57-55-6	1,2-Propanediol				
	oral	LD50 mg/kg 20000	rat	Toxicology and Appli	
	dermal	LD50 mg/kg 20800	rabbit	Raw Material Data Ha	
-	hydrochloric acid ... %				
	dermal	LD50 mg/kg >5010			

#### Irritation and corrosivity

No known effect.

#### Sensitising effects

No known effect.

#### Carcinogenic/mutagenic/toxic effects for reproduction

Contains no ingredient listed as a carcinogen

#### STOT-single exposure

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

#### STOT-repeated exposure

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

#### Aspiration hazard

No aspiration toxicity classification

#### Specific effects in experiment on an animal

No data is available on the product itself.

#### Additional information on tests

no data available

#### Practical experience

#### Observations relevant to classification

no data available

#### Other observations

no data available

#### 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

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
57-55-6	1,2-Propanediol					
	Acute fish toxicity	LC50 mg/l	51600	96 h	Oncorhynchus mykiss (rainbow trout)	OECD 203
	Acute crustacea toxicity	EC50 mg/l	34400	48 h	Daphnia magna (Water flea)	Information taken from reference works and the literature.
-	hydrochloric acid ... %					
	Acute fish toxicity	LC50	862 mg/l	96 h	Leuciscus idus	

**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.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
57-55-6	1,2-Propanediol	-0,92

**12.4. Mobility in soil**

no data available

**12.5. Results of PBT and vPvB assessment**

no data available

**12.6. Other adverse effects**

No known effect.

**Further information**

no data available

**SECTION 13: Disposal considerations**
**13.1. Waste treatment methods**
**Advice on disposal**

In accordance with local and national regulations.

**Waste disposal number of waste from 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

**Waste disposal number of 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

**Waste disposal number of 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**

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**Land transport (ADR/RID)****Other applicable information (land transport)**

Not subject to transport regulations.

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

Not tested

**Marine transport (IMDG)****Other applicable information (marine transport)**

Not subject to transport regulations.

**Air transport (ICAO-TI/IATA-DGR)****Other applicable information (air transport)**

Not subject to transport regulations.

**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**

no data available

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

Water contaminating class (D): 1 - slightly 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: 23.04.2018

Safety datasheet sections which have been updated: 4, 8, 11

Revision: 22.04.2015

Safety datasheet sections which have been updated: 2

**Relevant H and EUH statements (number and full text)**

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

**Further Information**

The information is based on present level of our knowledge. It does not, however, give assurances 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.)*

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**947-99 CalVer 2**

Product code: 94799

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

947-99 CalVer 2

**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**

This mixture is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

**2.2. Label elements****Additional advice on labelling**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**2.3. Other hazards**

None known.

**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	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
7647-14-5	Sodium chloride			>99 %
	231-598-3			
63451-35-4	Hydroxynaphthol			0,1 - 1,0 %
	264-197-7			
	Carc. 2, STOT SE 3; H351 H335			

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.

**After inhalation**

Move to fresh air. Consult a physician for severe cases.

**After contact with skin**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

**After contact with eyes**

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

**After ingestion**

If conscious, drink plenty of water. Consult a physician if necessary.

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

No known effect.

**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.

**Unsuitable extinguishing media**

No Limit

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

Fire may liberate hazardous vapours.

**5.3. Advice for firefighters**

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

**Additional information**

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

**SECTION 6: Accidental release measures**

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

Use personal protective equipment.

### **6.2. Environmental precautions**

Do not flush into surface water or sanitary sewer system.

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

Sweep up or vacuum up spillage and collect in suitable container for disposal.

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

Avoid dust formation.

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

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

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

Avoid contact with skin and eyes.

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

#### **Requirements for storage rooms and vessels**

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

### **7.3. Specific end use(s)**

Reagent for analysis

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

### **8.1. Control parameters**

#### **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.

#### **Eye/face protection**

Safety glasses with side-shields

#### **Hand protection**

Use barrier skin cream. Wash hands before breaks and at the end of workday. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### **Skin protection**

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### **Respiratory protection**

Breathing apparatus only if aerosol or dust is formed. Recommended Filter type: ABEK-filter

#### **Environmental exposure controls**

Should not be released into the environment.



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

Physical state:	powder
Colour:	dark blue
Odour:	amine-like
pH-Value (at 20 °C):	7,9 (5 % solution)

**Changes in the physical state**

Melting point:	274 °C
Initial boiling point and boiling range:	not applicable
Sublimation point:	no data available
Softening point:	not applicable
Pour point:	not applicable
Flash point:	not applicable

**Flammability**

Solid:	not applicable
Gas:	not applicable

**Explosive properties**

not applicable

Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Ignition temperature:	not applicable

**Auto-ignition temperature**

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not applicable
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**Oxidizing properties**

not applicable

Vapour pressure:	not applicable
Vapour pressure:	not applicable

Density (at 20 °C):	2,12 g/cm <sup>3</sup>
Bulk density:	no data available

Water solubility: (at 20 °C)	soluble
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**Solubility in other solvents**

no data available

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**

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Solid content:

no data available

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

None known.

**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

Hazardous polymerisation does not occur.

**10.4. Conditions to avoid**

Extremes of temperature and direct sunlight.

**10.5. Incompatible materials**

None known.

**10.6. Hazardous decomposition products**

None known.

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

LD50/oral/rat = 3000 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7647-14-5	Sodium chloride				
	oral	LD50 mg/kg	3000	Ratte	
	dermal	LD50 mg/kg	>10000	Kaninchen	

**Irritation and corrosivity**

No known effect.

**Sensitising effects**

No known effect.

**Carcinogenic/mutagenic/toxic effects for reproduction**

No known effect.

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

No aspiration toxicity classification

**Specific effects in experiment on an animal**

rabbit eye: 100mg/24hr Mild eye irritation

rabbit skin: 500mg/24hr Mild skin irritation

**Further information**

Handle in accordance with good industrial hygiene and safety practice.

**SECTION 12: Ecological information**

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#### 12.1. Toxicity

No data is available on the product itself.

Do not flush into surface water or sanitary sewer system.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
7647-14-5	Sodium chloride					
	Acute fish toxicity	LC50 mg/l	7650	96 h	Pimephales promelas	
	Acute crustacea toxicity	EC50 mg/l	1000	48 h	Daphnia magna	

#### 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 available

#### 12.5. Results of PBT and vPvB assessment

no data available

#### 12.6. Other adverse effects

No known effect.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

##### Advice on disposal

In accordance with local and national regulations.

##### Waste disposal number of waste from 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

##### Waste disposal number of 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

##### Contaminated packaging

Dispose of as unused product.

### SECTION 14: Transport information

#### Land transport (ADR/RID)

##### Other applicable information (land transport)

Not subject to transport regulations.

#### Inland waterways transport (ADN)

##### Other applicable information (inland waterways transport)

Not tested

#### Marine transport (IMDG)

##### Other applicable information (marine transport)

Not subject to transport regulations.

#### Air transport (ICAO-TI/IATA-DGR)

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### Other applicable information (air transport)

Not subject to transport regulations.

### 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

## SECTION 15: Regulatory information

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

#### EU regulatory information

##### Additional information

The product does not need to be labelled in accordance with EC directives or respective national laws.

##### National regulatory information

Water contaminating class (D): 1 - slightly 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: 23.04.2018

Safety datasheet sections which have been updated: 8, 11 - 13

Revision: 24.05.2017

Safety datasheet sections which have been updated: 2, 3, 4, 8, 11

Revision: 05.08.2015

Safety datasheet sections which have been updated: 2, 4, 11

Revision: 26.01.2015

Safety datasheet sections which have been updated: 2

### Relevant H and EUH statements (number and full text)

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

### Further Information

The information is based on present level of our knowledge. It does not, however, give assurances 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.)*