SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 22.03.2019 Version 6.1

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

1.1 Product identifier

Catalogue No.	101632
Product name	Monochloramine Test Method: photometric 0.050 - 10.00 mg/l Cl_2 0.036 - 7.26 mg/l NH_2Cl 0.010 - 1.98 mg/l NH_2Cl-N Spectroquant® MCA-1
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Corrosive to metals, Category 1, H290
Skin corrosion, Category 1B, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling.(REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word
Danger

Hazard statements
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary statements
Prevention
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word
Danger

Hazard statements
H314 Causes severe skin burns and eye damage.

Precautionary statements
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium hydroxide

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution of inorganic and organic compounds.

3.1 Substance

Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
Tetrasodium (1-hydroxyethylidene)bisphosphonate *(>= 3 % - < 10 %)*		
3794-83-0	*)	Acute toxicity, Category 4, H302 Eye irritation, Category 2, H319
sodium hydroxide *(>= 2 % - < 5 %)*		
PBT/vPvB: Not applicable for inorganic substances		
1310-73-2	01-2119457892-27-XXXX	Corrosive to metals, Category 1, H290 Skin corrosion, Category 1A, H314

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Risk of blindness!
Irritation and corrosion, Cough, Shortness of breath

collapse, death

4.3 Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Special protective equipment for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Suppress (knock down) gases/vapours/mists with a water spray jet. 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
Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
No metal containers.

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

sodium hydroxide (1310-73-2)

Worker DNEL, longterm	Local effects	inhalation	1 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	1 mg/m³

sodium hydroxide (1310-73-2)
PNEC no data available

8.2 Exposure controls

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

See section 7.1.

Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.

Environmental exposure controls
Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless

Odour	odourless
Odour Threshold	Not applicable
pH	ca. 13 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	ca.1,20 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Corrosion	May be corrosive to metals.

SECTION 10. Stability and reactivity

10.1 Reactivity
See section 10.3

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of ignition or formation of inflammable gases or vapours with:

Metals, Light metals

Possible formation of:

Hydrogen

Violent reactions possible with:

Nitriles, ammonium compounds, Cyanides, magnesium, organic nitro compounds, organic combustible substances, phenols, powdered alkaline earth metals, acids

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Aluminium, various plastics, brass, Metals, metal alloys, Zinc, Tin, Light metals, glass, quartzes/silicate ceramics, animal/vegetable tissues
Metals

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects
Mixture

Acute oral toxicity
Acute toxicity estimate: > 2.000 mg/kg
Calculation method

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity
This information is not available.

Skin irritation
Necrosis
Mixture causes burns.

Eye irritation
Risk of blindness!
Mixture causes serious eye damage.
Necrosis

Sensitisation
This information is not available.

Germ cell mutagenicity
This information is not available.

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
This information is not available.

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information

After absorption:
Systemic effects:
Cough, Shortness of breath, collapse, death
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

Tetrasodium (1-hydroxyethylidene)bisphosphonate

Acute oral toxicity
LD50 Rat: 940 mg/kg
OECD Test Guideline 401

Acute dermal toxicity
LD50 Rabbit: > 5.000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: irritating
OECD Test Guideline 405

sodium hydroxide

Skin irritation
Rabbit
Result: Causes burns.
(External MSDS)

Eye irritation
Rabbit
Result: Irreversible effects on the eye
(ECHA)

Sensitisation
Patch test: human
Result: negative
(ECHA)

Germ cell mutagenicity
Genotoxicity in vitro
Mutagenicity (mammal cell test): micronucleus.
Result: negative
(Lit.)

Ames test
Result: negative
(IUCLID)

SECTION 12. Ecological information

Mixture

12.1 Toxicity
No information available.

12.2 Persistence and degradability
No information available.

12.3 Bioaccumulative potential
No information available.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects
Additional ecological information
Harmful effect due to pH shift. Death of fish possible. Does not cause biological oxygen deficit. Neutralisation possible in waste water treatment plants.
Discharge into the environment must be avoided.

Components

Tetrasodium (1-hydroxyethylidene)bisphosphonate

Toxicity to fish
flow-through test LC50 Oncorhynchus mykiss (rainbow trout): 195 mg/l; 96 h
Analytical monitoring: yes
OECD Test Guideline 204 The value is given in analogy to the following substances:

Toxicity to daphnia and other aquatic invertebrates
static test EC50 Daphnia magna (Water flea): 527 mg/l; 48 h
OECD Test Guideline 202 The value is given in analogy to the following substances:

Toxicity to fish (Chronic toxicity)
flow-through test NOEC Oncorhynchus mykiss (rainbow trout): 60 mg/l; 14 d

Analytical monitoring: yes
OECD Test Guideline 204 The value is given in analogy to the following substances:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test NOEC Daphnia magna (Water flea): 6,75 mg/l; 28 d

US-EPA The value is given in analogy to the following substances:

Biodegradability
; 5 d; aerobic Biochemical oxygen demand within 5 days
OECD Test Guideline 301D
The value is given in analogy to the following substances:
Not readily biodegradable.

Partition coefficient: n-octanol/water
log Pow: -3 (23 °C)
OECD Test Guideline 107
Bioaccumulation is not expected.

sodium hydroxide

Toxicity to fish
LC50 Gambusia affinis (Mosquito fish): 125 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates
EC50 Ceriodaphnia (water flea): 40,4 mg/l; 48 h (ECHA)

Toxicity to bacteria
EC50 Photobacterium phosphoreum: 22 mg/l; 15 min (External MSDS)

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

PBT/vPvB: Not applicable for inorganic substances

SECTION 13. Disposal considerations

Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes

EmS F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard	96/82/EC
Legislation	Directive 96/82/EC does not apply
	SEVESO III Not applicable
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation
Storage class 3
The data applies to the entire pack.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.

Training advice
Provide adequate information, instruction and training for operators.

Labelling
Hazard pictograms

Signal word
Danger

Hazard statements
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary statements
Prevention
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium hydroxide

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation
This information is given on the authorised Safety Data Sheet for your country.

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

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 22.03.2019 Version 6.1

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

1.1 Product identifier

Catalogue No.	101632
Product name	Monochloramine Test Method: photometric 0.050 - 10.00 mg/l Cl_2 0.036 - 7.26 mg/l NH_2Cl 0.010 - 1.98 mg/l NH_2Cl-N Spectroquant® MCA-2
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 2, H225
Skin irritation, Category 2, H315
Serious eye damage, Category 1, H318
Specific target organ toxicity - single exposure, Category 3, Central nervous system, H336
Long-term (chronic) aquatic hazard, Category 3, H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling.(REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word
Danger

Hazard statements
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
Prevention
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground/bond container and receiving equipment.
P273 Avoid release to the environment.
P280 Wear eye protection.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P313 Get medical advice/ attention.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word
Danger

Hazard statements
H318 Causes serious eye damage.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear eye 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.
P313 Get medical advice/ attention.

Contains: 2-Propanol, thymol

2.3 Other hazards
None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution of organic compounds.

3.1 Substance
Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)
Chemical name (Concentration)

CAS-No.	Registration number	Classification
2-Propanol *(>= 25 % - < 50 %)*		
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.		
67-63-0	01-2119457558-25-XXXX	Flammable liquid, Category 2, H225 Eye irritation, Category 2, H319 Specific target organ toxicity - single exposure, Category 3, H336
thymol *(>= 2,5 % - < 5 %)*		
89-83-8	*)	Acute toxicity, Category 4, H302 Skin corrosion, Category 1B, H314 Long-term (chronic) aquatic hazard, Category 2, H411
Sodium nitroprusside *(>= 3 % - < 10 %)*		
14402-89-2	*)	Acute toxicity, Category 3, H301

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, respiratory paralysis, Headache, Drowsiness, Dizziness, inebriation, somnolence, narcosis, Unconsciousness, Coma
Risk of serious damage to eyes.
Drying-out effect resulting in rough and chapped skin.
The following applies to cyanogen compounds/ nitriles in general: utmost caution!
Release of hydrocyanic acid is possible - blockade of cellular respiration.
Cardiovascular disorders, dyspnoea, unconsciousness.
The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.
Pay attention to flashback.
Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air at ambient temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides, Hydrogen cyanide (hydrocyanic acid)

5.3 Advice for firefighters

Special protective equipment for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. 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

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

2-Propanol (67-63-0)

Worker DNEL, longterm	Systemic effects	inhalation	500 mg/m³
Worker DNEL, longterm	Systemic effects	dermal	888 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	89 mg/m³
Consumer DNEL, longterm	Systemic effects	dermal	319 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	26 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

2-Propanol (67-63-0)

PNEC Fresh water	140,9 mg/l
PNEC Fresh water sediment	552 mg/kg
PNEC Marine water	140,9 mg/l
PNEC Marine sediment	552 mg/kg
PNEC Soil	28 mg/kg

8.2 Exposure controls

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

See section 7.1.

Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	> 480 min

splash contact:

Glove material:	polychloroprene
Glove thickness:	0,65 mm
Break through time:	> 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril® - Velours (full contact), KCL 720 Camapren® (splash contact).
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.

Environmental exposure controls
Do not let product enter drains.
Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	beige

Odour	characteristic odour
Odour Threshold	No information available.
pH	6 - 7 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	22,9 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	0,94 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

none

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Alkali metals, Alkaline earth metals, Aluminium, chromium(VI) oxide

Exothermic reaction with:

Oxidizing agents, Nitric acid, Aldehydes, Amines, fuming sulfuric acid, Iron, Aluminium, Chlorine, PHOSPHORUS TRICHLORIDE, Strong acids

Risk of explosion with:

chlorates, Phosgene, organic nitro compounds, hydrogen peroxide, nitrogen oxides, perchlorates

10.4 Conditions to avoid

Warming.

10.5 Incompatible materials

various plastics, rubber, oils

10.6 Hazardous decomposition products

Peroxides

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity
Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.

Acute toxicity estimate: > 2.000 mg/kg
Calculation method

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity
This information is not available.

Skin irritation
Mixture causes skin irritation.

Eye irritation
Mixture causes serious eye damage.

Sensitisation
This information is not available.

Germ cell mutagenicity
This information is not available.

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
Mixture may cause drowsiness or dizziness.Target Organs: Central nervous system

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information

After absorption:
Systemic effects:
Headache, Dizziness, respiratory paralysis, inebriation, narcosis, Unconsciousness
After uptake of large quantities:
respiratory paralysis, Coma
The following applies to cyanogen compounds/ nitriles in general: utmost caution!
Release of hydrocyanic acid is possible - blockade of cellular respiration.
Cardiovascular disorders, dyspnoea, unconsciousness.
The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

2-Propanol

Acute oral toxicity
LD50 Rat: 5.045 mg/kg (RTECS)

Acute inhalation toxicity
LC50 Rat: 37,5 mg/l; 4 h ; vapour
OECD Test Guideline 403

Acute dermal toxicity
LD50 Rabbit: 12.800 mg/kg (RTECS)

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: Eye irritation
OECD Test Guideline 405

Sensitisation
Buehler Test Guinea pig
Result: negative
Method: OECD Test Guideline 406

Germ cell mutagenicity
Genotoxicity in vivo
In vivo micronucleus test
Mouse
male and female
Intraperitoneal injection
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Result: negative
Method: OECD Test Guideline 476

Carcinogenicity
Method: OECD Test Guideline 451
Did not show carcinogenic effects in animal experiments.

Reproductive toxicity
No impairment of reproductive performance in animal experiments. (IUCLID)

Teratogenicity
Did not show teratogenic effects in animal experiments. (IUCLID)

thymol

Acute oral toxicity
LD50 Rat: 980 mg/kg (ECHA)

Acute dermal toxicity
LD50 Rat: > 2.000 mg/kg (ECHA)

Skin irritation
Rabbit
Result: Causes burns.
OECD Test Guideline 404

Eye irritation
Rabbit
Result: Irreversible effects on the eye
OECD Test Guideline 405

Sensitisation
Sensitisation test: Guinea pig
Result: Does not cause skin sensitisation.
(ECHA)

Germ cell mutagenicity
Genotoxicity in vivo
In vivo micronucleus test
Mouse
male and female
Oral
Result: negative
(ECHA)

Genotoxicity in vitro
Ames test
Escherichia coli/Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Result: negative
Method: OECD Test Guideline 476

Sodium nitroprusside
Acute oral toxicity
LD50 Rat: 99 mg/kg (RTECS)

SECTION 12. Ecological information

Mixture

12.1 Toxicity
No information available.

12.2 Persistence and degradability
No information available.

12.3 Bioaccumulative potential
No information available.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects
Additional ecological information
Discharge into the environment must be avoided.

Components

2-Propanol

Toxicity to fish
flow-through test LC50 Pimephales promelas (fathead minnow): 9.640 mg/l; 96 h
US-EPA

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 13.299 mg/l; 48 h (IUCLID)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): > 1.000 mg/l; 72 h (IUCLID)

Toxicity to bacteria
EC5 Pseudomonas putida: 1.050 mg/l; 16 h (Lit.)

Biodegradability
95 %; 21 d; aerobic
OECD Test Guideline 301E
Readily biodegradable

Theoretical oxygen demand (ThOD)
2.400 mg/g
(Lit.)

Ratio BOD/ThBOD
BOD5 49 %
(IUCLID)

Ratio COD/ThBOD
96 %
(Lit.)

Partition coefficient: n-octanol/water
log Pow: 0,05
OECD Test Guideline 107
Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

thymol

Toxicity to fish
static test LC50 Pimephales promelas (fathead minnow): 3,2 mg/l; 96 h
US-EPA

Toxicity to daphnia and other aquatic invertebrates
static test EC50 Daphnia magna (Water flea): 3,2 mg/l; 96 h
US-EPA

Toxicity to algae
EC50 Pseudokirchneriella subcapitata (green algae): 14 mg/l; 72 h
OECD Test Guideline 201

Toxicity to bacteria
static test EC50 activated sludge: 40 mg/l; 3 h
OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOEC Daphnia magna (Water flea): 2 mg/l; 21 d

OECD Test Guideline 211

Biodegradability
83 %; 28 d; aerobic
OECD Test Guideline 301D
Readily biodegradable

Chemical Oxygen Demand (COD)
2.690 mg/g
(IUCLID)

Theoretical oxygen demand (ThOD)
2.760 mg/g
(IUCLID)

Partition coefficient: n-octanol/water
log Pow: 3,30
(experimental)
(Lit.) Bioaccumulation is not expected.

Sodium nitroprusside
No information available.

SECTION 13. Disposal considerations

Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation	96/82/EC Flammable. 6 Quantity 1: 5.000 t Quantity 2: 50.000 t SEVESO III FLAMMABLE LIQUIDS P5c Quantity 1: 5.000 t Quantity 2: 50.000 t
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation
Storage class 3
The data applies to the entire pack.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Training advice
Provide adequate information, instruction and training for operators.

Labelling
Hazard pictograms

Signal word
Danger

Hazard statements
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
P273 Avoid release to the environment.
P280 Wear eye protection.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P313 Get medical advice/ attention.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Contains: 2-Propanol, thymol

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation
This information is given on the authorised Safety Data Sheet for your country.

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

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