

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 10.09.2018

Version 6.2

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

Catalogue No. 115525

Product name RINGER tablets for the preparation of RINGER'S solution

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](http://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](mailto:prodsafe@merckgroup.com)**1.4 Emergency telephone number** Please contact the regional company representation in your country.

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

Eye irritation, Category 2, H319

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

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## 2.2 Label elements

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

#### *Hazard pictograms*



#### *Signal word*

Warning

#### *Hazard statements*

H319 Causes serious eye irritation.

#### *Precautionary statements*

Response

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

#### **Reduced labelling ( $\leq 125$ ml)**

#### *Hazard pictograms*



#### *Signal word*

Warning

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature Mixture of inorganic compounds

### 3.1 Substance

Not applicable

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## 3.2 Mixture

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

*Chemical name (Concentration)*

CAS-No.          Registration number      Classification

ammonium chloride ( $\geq 20\%$  -  $< 25\%$ )

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

12125-02-9      01-2119489385-24-

XXXX

Acute toxicity, Category 4, H302

Eye irritation, Category 2, H319

calcium chloride ( $\geq 1\%$  -  $< 3\%$ )

*PBT/vPvB: Not applicable for inorganic substances*

10043-52-4      01-2119494219-28-      Eye irritation, Category 2, H319

XXXX

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

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

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. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

irritant effects

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The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhoea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis.

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

No information available.

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### 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.

Fire may cause evolution of:

Hydrogen chloride gas, nitrogen oxides

#### 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.

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### SECTION 6. Accidental release measures

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

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

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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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

*Advice on safe handling*

Observe label precautions.

*Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

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

*Storage conditions*

Tightly closed. Dry.

Recommended storage temperature see product label.

### 7.3 Specific end use(s)

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

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

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## Derived No Effect Level (DNEL)

### *ammonium chloride (12125-02-9)*

Worker DNEL, longterm	Systemic effects	inhalation	43,97 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	128,9 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	9,4 mg/m <sup>3</sup>
Consumer DNEL, longterm	Systemic effects	dermal	55,2 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	55,2 mg/kg Body weight

### *calcium chloride (10043-52-4)*

Worker DNEL, longterm	Local effects	inhalation	5 mg/m <sup>3</sup>
Worker DNEL, acute	Local effects	inhalation	10 mg/m <sup>3</sup>
Consumer DNEL, longterm	Local effects	inhalation	2,5 mg/m <sup>3</sup>
Consumer DNEL, acute	Local effects	inhalation	5 mg/m <sup>3</sup>

## Predicted No Effect Concentration (PNEC)

### *ammonium chloride (12125-02-9)*

PNEC Fresh water	0,25 mg/l
PNEC Fresh water sediment	0,9 mg/kg
PNEC Marine water	0,025 mg/l
PNEC Marine sediment	0,09 mg/kg
PNEC Aquatic intermittent release	0,43 mg/l
PNEC Soil	50,7 mg/kg
PNEC Sewage treatment plant	13,1 mg/l

## 8.2 Exposure controls

### Engineering measures

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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*

Safety glasses

### *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).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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](http://www.kcl.de)).

### *Other protective equipment*

protective clothing

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## *Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

The entrepreneur 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.

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## **SECTION 9. Physical and chemical properties**

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

Form	tablets
Colour	white
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 7 at 2,5 g/l 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.

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Flammability (solid, gas) The product is not flammable.

Lower explosion limit No information available.

Upper explosion limit No information available.

Vapour pressure No information available.

Relative vapour density No information available.

Density No information available.

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

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

See section 10.3

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## 10.2 Chemical stability

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

## 10.3 Possibility of hazardous reactions

no information available

## 10.4 Conditions to avoid

no information available

## 10.5 Incompatible materials

no information available

## 10.6 Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

#### *Acute oral toxicity*

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*

This information is not available.

#### *Eye irritation*

Mixture causes serious eye irritation.

#### *Sensitisation*

This information is not available.

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## *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**

The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhoea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## **Components**

### *ammonium chloride*

#### *Acute oral toxicity*

LD50 Rat: 1.410 mg/kg

OECD Test Guideline 401

#### *Acute dermal toxicity*

LD50 Rat: > 2.000 mg/kg

(ECHA)

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## *Skin irritation*

Rabbit

Result: No skin irritation

Draize Test

## *Eye irritation*

Rabbit

Result: Eye irritation

OECD Test Guideline 405

## *Sensitisation*

Maximisation Test Guinea pig

Result: negative

(ECHA)

## *Repeated dose toxicity*

Rat

male and female

Oral

90 d

daily

NOAEL: 1.695,7 mg/kg

OECD Test Guideline 408

Subchronic toxicity

## *Germ cell mutagenicity*

### *Genotoxicity in vivo*

Micronucleus test

Mouse

male

Intraperitoneal injection

Result: negative

Method: OECD Test Guideline 474

### *Genotoxicity in vitro*

HGPRT (cell forward mutation assay)

Result: negative

Method: OECD Test Guideline 476

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

## *calcium chloride*

*Acute dermal toxicity*  
LD50 Rabbit: > 5.000 mg/kg  
(ECHA)

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

*Eye irritation*  
Rabbit  
Result: Eye irritation  
OECD Test Guideline 405

*Germ cell mutagenicity*  
*Genotoxicity in vitro*  
Ames test  
Result: negative

(Lit.)

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## 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

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Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

## 12.6 Other adverse effects

Discharge into the environment must be avoided.

## Components

### *ammonium chloride*

#### *Toxicity to fish*

LC50 *Oncorhynchus mykiss* (rainbow trout): 42,91 mg/l; 96 h

Analytical monitoring: yes

US-EPA

#### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes

(ECHA)

#### *Toxicity to bacteria*

static test EC50 activated sludge: 1.310 mg/l; 0,5 h

OECD Test Guideline 209

#### *Toxicity to fish (Chronic toxicity)*

flow-through test EC10 *Lepomis macrochirus* (Bluegill sunfish): 4,28 mg/l; 30 d

Analytical monitoring: yes

(ECHA)

#### *Biodegradability*

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

#### *Partition coefficient: n-octanol/water*

Not applicable for inorganic substances

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

### *calcium chloride*

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#### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 10.650 mg/l; 96 h  
(IUCLID)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 144 mg/l; 48 h  
(IUCLID)

#### *Toxicity to algae*

IC50 algae: 3.130 mg/l; 120 h  
(IUCLID)

PBT/vPvB: Not applicable for inorganic substances

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

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**14.1 - 14.6** Not classified as dangerous in the meaning of transport regulations.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

Major Accident Hazard SEVESO III

Legislation 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  $\geq 0.1$  % (w/w).

#### *National legislation*

Storage class 10 - 13

### 15.2 Chemical safety assessment

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

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## SECTION 16. Other information

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

H302 Harmful if swallowed.  
H319 Causes serious eye irritation.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H319 Causes serious eye irritation.

*Precautionary statements*

Response

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

### 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](http://www.wikipedia.org).

### Regional representation

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

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*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.*