



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.06.2013

Version 9.0

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

### 1.1 Product identifier

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®

Zn

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.merck-chemicals.com](http://www.merck-chemicals.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 EQ-RS \* e-mail: [prodsafe@merckgroup.com](mailto: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)

Acute toxicity, Category 3, Oral, H301  
Acute toxicity, Category 3, Dermal, H311  
Chronic aquatic toxicity, Category 3, H412

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

Classification (67/548/EEC or 1999/45/EC)

T	Toxic	R23/24/25
	Dangerous for the environment	R52/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

### 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



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*Signal word*  
Danger

*Hazard statements*  
H301 + H311 Toxic if swallowed or in contact with skin  
H412 Harmful to aquatic life with long lasting effects.

*Precautionary statements*  
Prevention  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing.  
Response  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*




*Signal word*  
Danger

*Hazard statements*  
H301 + H311 Toxic if swallowed or in contact with skin  
H412 Harmful to aquatic life with long lasting effects.

*Precautionary statements*  
P280 Wear protective gloves/ protective clothing.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Contains: Potassium cyanide

**Labelling (67/548/EEC or 1999/45/EC)**

<i>Symbol(s)</i>	 T	Toxic
<i>R-phrase(s)</i>	23/24/25-52/53	Toxic by inhalation, in contact with skin and if swallowed. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<i>S-phrase(s)</i>	36/37-45-61	Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Contains: Potassium cyanide

**2.3 Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

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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
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Potassium cyanide ( $\geq 1\%$ - $< 2,5\%$ )		
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151-50-8	*)	
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Acute toxicity, Category 2, H330

Acute toxicity, Category 1, H310

Acute toxicity, Category 2, H300

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

\*) 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.

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
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Potassium cyanide ( $\geq 1\%$ - $< 2,5\%$ )	
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151-50-8	R32
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T+, Very toxic; R26/27/28

N, Dangerous for the environment; R50-53

For the full text of the R-phrases mentioned in this Section, see Section 16.

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

*General advice*

Rapid action is called for. First aider needs to protect himself. Immediately call in physician (mention hydrocyanic acid poisoning).

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

After skin contact: wash off with plenty of water. Remove contaminated clothing. Get medical attention.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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

irritant effects, respiratory paralysis, Circulatory collapse

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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.

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

Keep antidotes ready:  
dimethylaminophenol  
Cobalt-EDTA  
sodium thiosulphate

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### SECTION 5. Firefighting measures

#### 5.1 Extinguishing media

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), 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

Mixture with combustible ingredients.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

Sulphur 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*

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: 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 empty into 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 material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

#### 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*

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

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**

*Storage conditions*

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Store at +15°C to +25°C.

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.

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**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

**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*

Safety glasses

*Hand protection*

full contact:

Glove material:	polychloroprene
Glove thickness:	0,65 mm
Break through time:	> 480 min

splash contact:

Glove material:	natural latex
Glove thickness:	0,6 mm
Break through time:	> 240 min

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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 720 Camapren® (full contact), KCL 706 Lapren® (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](http://www.kcl.de)).

*Other protective equipment*  
protective clothing

*Respiratory protection*  
required when vapours/aerosols are generated.  
Recommended Filter type: filter ABEK  
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 empty into drains.

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**SECTION 9. Physical and chemical properties**

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

Form	liquid
Colour	orange
Odour	characteristic
Odour Threshold	No information available.
pH	ca. 13 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
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.

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Relative density	ca. 1,08 g/cm <sup>3</sup> at 20 °C
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

Forms explosive mixtures with air on intense heating.

#### 10.2 Chemical stability

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

#### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Alkali metals, hydrides, nitrates, halogen-halogen compounds, perchloric acid, perchlorates, chlorates, nonmetallic oxyhalides, oxyhalogenic compounds, acid halides, nitrogen oxides, Sulphur oxides, Strong oxidizing agents, acids

#### 10.4 Conditions to avoid

Strong heating.

#### 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: 263,18 mg/kg

Calculation method

absorption

##### *Acute inhalation toxicity*

Acute toxicity estimate: > 20 mg/l; vapour

Calculation method

Symptoms: Irritation symptoms in the respiratory tract.

##### *Acute dermal toxicity*

Acute toxicity estimate : 263,16 mg/kg

Calculation method

absorption

##### *Skin irritation*

Possible damages: slight irritation

##### *Eye irritation*

Possible damages: slight irritation

##### *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

Systemic effects:

respiratory paralysis, Circulatory collapse

Lethal effect after absorption.

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.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.



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## Components

### *Potassium cyanide*

#### *Acute oral toxicity*

LDLO human: 2,86 mg/kg (RTECS)

LD50 rat: 5 mg/kg (RTECS)

#### *Acute inhalation toxicity*

Acute toxicity estimate: 0,051 mg/l; dust/mist

Expert judgement

#### *Acute dermal toxicity*

LD50 rabbit: 14,3 - 33,3 mg/kg (IUCLID)

#### *Eye irritation*

rabbit

Result: Eye irritation  
(IUCLID)

#### *Germ cell mutagenicity*

##### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative  
(IUCLID)

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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

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

#### *Potassium cyanide*

##### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 0,45 mg/l; 96 h (in soft water) (IUCLID)

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

EC5 *E.sulcatum*: 1,8 - 1,9 mg/l; 72 h (referred to cyanide ions) (IUCLID) (maximum permissible toxic concentration)

EC50 *Daphnia magna* (Water flea): 2 mg/l; 48 h (Hommel)

##### *Toxicity to algae*

IC5 *Scenedesmus quadricauda* (Green algae): 0,03 mg/l; 8 d (referred to cyanide ions) (IUCLID) (maximum permissible toxic concentration)

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*Toxicity to bacteria*

EC5 Pseudomonas putida: 0,001 mg/l; 16 h (referred to the anion) (IUCLID) (maximum permissible toxic concentration)

EC50 activated sludge: 0,6 - 2,3 mg/l; 30 min (IUCLID)

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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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**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

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THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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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 96/82/EC  
Legislation Toxic  
2  
Quantity 1: 50 t  
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

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

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern above the respective regulatory limit (> 0.1 % (w/w) Regulation (EC) No 1907/2006 (REACH), Article 57).

#### *National legislation*

|| Storage class 6.1 D  
The data applies to the entire pack.

### 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.

H300 Fatal if swallowed.  
H301 Toxic if swallowed.  
H310 Fatal in contact with skin.  
H311 Toxic in contact with skin.  
H330 Fatal if inhaled.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.  
H412 Harmful to aquatic life with long lasting effects.

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**Full text of R-phrases referred to under sections 2 and 3**

R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed.
R32	Contact with acids liberates very toxic gas.
R50	Very toxic to aquatic organisms.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.

**Training advice**

Provide adequate information, instruction and training for operators.

**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**

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.*



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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

### 1.1 Product identifier

Catalogue No.	100861
Product name	Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®
	Zn-1K
REACH Registration Number	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.

### 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 ( <a href="http://www.merck-chemicals.com">www.merck-chemicals.com</a> ).
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### 1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	EQ-RS * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

**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

This substance is not classified as dangerous according to European Union legislation.

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**  
Not a dangerous substance according to GHS.

### Labelling (67/548/EEC or 1999/45/EC)

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

### 2.3 Other hazards

None known.

## SECTION 3. Composition/information on ingredients

### 3.1 Substance

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Formula  $C_6H_8O_6$  (Hill)  
CAS-No. 50-81-7  
EC-No. 200-066-2  
Molar mass 176,12 g/mol

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

Remarks No disclosure requirement according to Regulation (EC) No. 1907/2006

**3.2 Mixture**  
not applicable

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

**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**

No information available.

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), 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.

Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

*Special protective equipment for firefighters*

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

*Further information*

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**

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Zn-1K

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Advice for non-emergency personnel: Avoid inhalation of dusts. 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 empty into 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. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Store at +15°C to +25°C.

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.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

### 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*

Safety glasses

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Zn-1K

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*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)).

*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 empty into drains.

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**SECTION 9. Physical and chemical properties**

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

Form	solid
Colour	white
Odour	odourless
Odour Threshold	not applicable
pH	2,2 - 2,5 at 50 g/l 20 °C
Melting point	190 - 192 °C (decomposition)
Boiling point/boiling range	not applicable
Flash point	not applicable



SAFETY DATA SHEET  
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Catalogue No. 100861  
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Zn-1K

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Evaporation rate	No information available.
Flammability (solid, gas)	May form combustible dust concentrations in air
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapour pressure	at 20 °C not applicable
Relative vapour density	at 20 °C not applicable
Relative density	1,65 g/cm <sup>3</sup>
Water solubility	330 g/l at 24 °C
Partition coefficient: n-octanol/water	log Pow: -2,15 (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 192 °C
Viscosity, dynamic	at 20 °C not applicable
Explosive properties	Not classified as explosive.
Oxidizing properties	none

## 9.2 Other data

Ignition temperature	380 °C
Bulk density	ca.500 - 900 kg/m <sup>3</sup>

---

## SECTION 10. Stability and reactivity

### 10.1 Reactivity

Reducing agents  
Risk of dust explosion.

### 10.2 Chemical stability

sensitive to moisture  
Sensitivity to light  
Sensitive to air.

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
Aluminium, Copper alloys, Zinc, metal ions, Oxidizing agents, Copper

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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-1K

---

**10.4 Conditions to avoid**

Strong heating (decomposition).

**10.5 Incompatible materials**

no information available

**10.6 Hazardous decomposition products**

no information available

---

**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 rat: 11.900 mg/kg (RTECS)

*Acute inhalation toxicity*

This information is not available.

*Acute dermal toxicity*

This information is not available.

*Skin irritation*

rabbit

Result: No irritation

OECD Test Guideline 404

*Eye irritation*

rabbit

Result: slight irritation

OECD Test Guideline 405

*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**

Substances which occur in nature

Handle in accordance with good industrial hygiene and safety practice.

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Zn-1K

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**SECTION 12. Ecological information**

**12.1 Toxicity**

*Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 1.020 mg/l; 96 h

OECD Test Guideline 203 acidic

*Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 360 mg/l; 48 h (External MSDS)

*Toxicity to algae*

IC50 Desmodesmus subspicatus (green algae): 1.750 mg/l; 72 h (External MSDS)

*Toxicity to bacteria*

EC50 Pseudomonas putida: 140 mg/l; 16 h (External MSDS)

**12.2 Persistence and degradability**

*Biodegradability*

97 %; 5 d

OECD Test Guideline 302B

Readily eliminated from water

*Ratio BOD/ThBOD*

BOD28 65 %

Closed Bottle test

BOD5 48 %

Closed Bottle test

**12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -2,15

(Lit.) Bioaccumulation is not expected.

**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*

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Discharge into the environment must be avoided.

SAFETY DATA SHEET  
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Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-1K

---

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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.

---

**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!

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**SECTION 15. Regulatory information**

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

*EU regulations*

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Major Accident Hazard Legislation 96/82/EC  
Directive 96/82/EC does not apply

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

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern above the respective regulatory limit (> 0.1 % (w/w) Regulation (EC) No 1907/2006 (REACH), Article 57).

*National legislation*

|| Storage class 6.1 D  
The data applies to the entire pack.

Dust explosion class St1

## 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.

Full text of R-phrases referred to under sections 2 and 3

### Training advice

Provide adequate information, instruction and training for operators.

### 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

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.*



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.06.2013

Version 9.0

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

### 1.1 Product identifier

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®

Zn-2K

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.merck-chemicals.com](http://www.merck-chemicals.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 EQ-RS \* e-mail: [prodsafe@merckgroup.com](mailto: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

This mixture is not classified as dangerous according to European Union legislation.

### 2.2 Label elements

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

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

#### Labelling (67/548/EEC or 1999/45/EC)

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

### 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

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

Remarks No disclosure requirement according to Regulation (EC) No. 1907/2006.

---

#### SECTION 4. First aid measures

##### 4.1 Description of first aid measures

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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

We have no description of any toxic symptoms.

##### 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*

Water, Carbon dioxide (CO<sub>2</sub>), 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

Mixture with combustible ingredients.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Fire may cause evolution of:

nitrous gases, nitrogen oxides, Hydrogen chloride gas

##### 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: Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

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SAFETY DATA SHEET  
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### 6.2 Environmental precautions

Do not empty into 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<sup>-</sup>, 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*

Change contaminated clothing. Wash hands after working with substance.

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

*Storage conditions*

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Store at +15°C to +25°C.

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

### 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*

Safety glasses

*Hand protection*

full contact:

Glove material: natural latex

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splash contact:

Glove thickness:	0,6 mm
Break through time:	> 480 min
Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 10 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 706 Lapren® (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](http://www.kcl.de)).

*Respiratory protection*

Not required; except in case of aerosol formation.

**Environmental exposure controls**

Do not empty into 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. 9 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
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.

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according to Regulation (EC) No. 1907/2006

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Zn-2K

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Relative density	ca. 1,07 g/cm <sup>3</sup> at 20 °C
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

Forms explosive mixtures with air on intense heating.

#### 10.2 Chemical stability

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

#### 10.3 Possibility of hazardous reactions

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitosamines!

Exothermic reaction with:

Acrolein, Nitriles, chlorosulfonic acid, Hydrogen chloride gas, acetic acid, Acetic anhydride, fuming sulfuric acid, Nitric acid, sulphuric acid, Iron, mineral acids, vinyl acetate, Oxidizing agents

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

sulfur, iron(III) compounds

#### 10.4 Conditions to avoid

Strong heating.

#### 10.5 Incompatible materials

no information available

#### 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*

This information is not available.

---

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according to Regulation (EC) No. 1907/2006

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-2K

---

*Acute inhalation toxicity*

This information is not available.

*Acute dermal toxicity*

This information is not available.

*Skin irritation*

This information is not available.

*Eye irritation*

This information is not available.

*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

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

Handle in accordance with good industrial hygiene and safety practice.

---

## 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.

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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-2K

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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.

---

**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**

---

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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-2K

---

*EU regulations*

Major Accident Hazard 96/82/EC  
Legislation Directive 96/82/EC does not apply

Regulation (EC) No 1005/2009 on substances that not regulated  
deplete the ozone layer

Regulation (EC) No 850/2004 of the European not regulated  
Parliament and of the Council of 29 April 2004 on  
persistent organic pollutants and amending  
Directive 79/117/EEC

Regulation (EC) No 689/2008 concerning the export not regulated  
and import of dangerous chemicals

Substances of very high concern (SVHC) This product does not contain substances  
of very high concern above the respective  
regulatory limit (> 0.1 % (w/w) Regulation  
(EC) No 1907/2006 (REACH), Article 57).

*National legislation*

|| Storage class 6.1 D  
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.

Full text of R-phrases referred to under sections 2 and 3

**Training advice**

Provide adequate information, instruction and training for operators.

**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**

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.*



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.06.2013

Version 9.0

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

### 1.1 Product identifier

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®

Zn-3K

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.merck-chemicals.com](http://www.merck-chemicals.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 EQ-RS \* e-mail: [prodsafe@merckgroup.com](mailto: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)

Acute toxicity, Category 4, Oral, H302  
Acute toxicity, Category 4, Inhalation, H332  
Acute toxicity, Category 4, Dermal, H312  
Skin irritation, Category 2, H315  
Eye irritation, Category 2, H319  
Skin sensitisation, Category 1, H317  
Carcinogenicity, Category 2, H351  
Specific target organ toxicity - single exposure, Category 2, H371  
Specific target organ toxicity - single exposure, Category 3, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification (67/548/EEC or 1999/45/EC)

Xn	Harmful	R20/21/22 - 68/20/21/22
Carc.Cat.3	Carcinogenic Category 3	R40
	Sensitising	R43
Xi	Irritant	R36/37/38

For the full text of the R-phrases mentioned in this Section, see Section 16.

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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-3K

---

## 2.2 Label elements

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

#### *Hazard pictograms*



#### *Signal word*

Warning

#### *Hazard statements*

H302 Harmful if swallowed.  
H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.  
H351 Suspected of causing cancer.  
H371 May cause damage to organs.

#### *Precautionary statements*

##### Prevention

P280 Wear protective gloves.

##### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

#### **Reduced labelling (≤125 ml)**

#### *Hazard pictograms*



#### *Signal word*

Warning

#### *Hazard statements*

H317 May cause an allergic skin reaction.  
H351 Suspected of causing cancer.

#### *Precautionary statements*

P280 Wear protective gloves.


P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

Contains: formaldehyde, methanol

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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-3K


**Labelling (67/548/EEC or 1999/45/EC)**

*Symbol(s)*  Xn Harmful

*R-phrase(s)* 20/21/22-36/37/38-40-68/20/21/22-43 Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Limited evidence of a carcinogenic effect. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. May cause sensitisation by skin contact. Wear suitable protective clothing and gloves.

*S-phrase(s)* 36/37

**Reduced labelling (≤125 ml)**

*Symbol(s)*  Xn Harmful

*R-phrase(s)* 20/21/22-40-43-68/20/21/22 Harmful by inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitisation by skin contact. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. Wear suitable protective clothing and gloves.

*S-phrase(s)* 36/37

Contains: formaldehyde, methanol

**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
formaldehyde (>= 10 % - < 20 % ) 50-00-0 *)		Carcinogenicity, Category 2, H351 Acute toxicity, Category 3, H331 Acute toxicity, Category 3, H311 Acute toxicity, Category 3, H301 Skin corrosion, Category 1B, H314 Skin sensitisation, Category 1, H317

methanol (>= 3 % - < 10 % )

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

67-56-1	01-2119433307-44-XXXX	Flammable liquid, Category 2, H225 Acute toxicity, Category 3, H301 Acute toxicity, Category 3, H331 Acute toxicity, Category 3, H311 Specific target organ toxicity - single exposure, Category 1, H370
---------	-----------------------	--

\*) 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.



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

Catalogue No. 100861  
Product name Zinc Cell Test Method: photometric 0.025 - 1.000 mg/l Zn Spectroquant®  
Zn-3K

---

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
formaldehyde (>= 10 % - < 20 % )	
50-00-0	Carc.Cat.3; R40 T, Toxic; R23/24/25 C, Corrosive; R34 R43

methanol (>= 3 % - < 10 % )	
67-56-1	F, Highly flammable; R11 T, Toxic; R23/24/25-39/23/24/25

For the full text of the R-phrases mentioned in this Section, see Section 16.

---

**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

After skin contact: wash off with plenty of water. Remove contaminated clothing. Get medical attention.

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

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

Allergic reactions, irritant effects, Cough, Shortness of breath, Nausea, Vomiting, narcosis, blindness

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

Gastric lavage. Laxative: Sodium sulfate (1 tablespoon/1/4 l water).  
Mention methanol.

---

**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), 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**

Mixture with combustible ingredients.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

formaldehyde 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.

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*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 empty into 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 material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

Render harmless: Treatment with excess sodium hydrogen sulfite solution.

**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*

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

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**

*Storage conditions*

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Store at +15°C to +25°C.

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.

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**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

*methanol (67-56-1)*



Worker DNEL, acute

Systemic effects

dermal

40 mg/kg Body weight

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Worker DNEL, acute	Systemic effects	inhalation	260 mg/m <sup>3</sup>
Worker DNEL, acute	Local effects	inhalation	260 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	40 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	260 mg/m <sup>3</sup>
Worker DNEL, longterm	Local effects	inhalation	260 mg/m <sup>3</sup>
Consumer DNEL, acute	Systemic effects	dermal	8 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	50 mg/m <sup>3</sup>
Consumer DNEL, acute	Systemic effects	oral	8 mg/kg Body weight
Consumer DNEL, acute	Local effects	inhalation	50 mg/m <sup>3</sup>
Consumer DNEL, longterm	Systemic effects	dermal	8 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	50 mg/m <sup>3</sup>
Consumer DNEL, longterm	Systemic effects	oral	8 mg/kg Body weight
Consumer DNEL, longterm	Local effects	inhalation	50 mg/m <sup>3</sup>

*methanol (67-56-1)*

PNEC Fresh water	154 mg/l
PNEC Fresh water sediment	570,4 mg/kg
PNEC Marine water	15,4 mg/l
PNEC Soil	23,5 mg/kg
PNEC Sewage treatment plant	100 mg/l

## 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*

Safety glasses

#### *Hand protection*

full contact:

Glove material: butyl-rubber  
Glove thickness: 0,7 mm  
Break through time: > 480 min

splash contact:

Glove material: Viton (R)

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Glove thickness: 0,70 mm  
Break through time: > 240 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 898 Butoject® (full contact), KCL 890 Vitoject® (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](http://www.kcl.de)).

*Other protective equipment*  
protective clothing

*Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: filter ABEK

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 empty into 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. 3 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
Evapouration 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.

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Relative vapour density	No information available.
Relative density	ca. 1,03 g/cm <sup>3</sup> at 20 °C
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

Reducing agents  
tends to polymerise

#### 10.2 Chemical stability

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

*Stabilizer*  
methanol

#### 10.3 Possibility of hazardous reactions

the constituents may react with:

polymerisation initiators, Alkali metals, bases, nitrogen oxides, hydrogen peroxide, Oxidizing agents, performic acid, phenol, halogens, acids

#### 10.4 Conditions to avoid

Heating.

#### 10.5 Incompatible materials

various metals, Nickel, Zinc, Iron, Copper, various alloys

#### 10.6 Hazardous decomposition products

no information available

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### *Acute oral toxicity*

Acute toxicity estimate: 608,95 mg/kg

Calculation method

absorption

Symptoms: Nausea, Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

##### *Acute inhalation toxicity*

absorption

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Acute toxicity estimate: 18,27 mg/l; vapour

Calculation method

##### *Acute dermal toxicity*

Acute toxicity estimate : 1.827 mg/kg

Calculation method

absorption

##### *Skin irritation*

Mixture causes skin irritation.

##### *Eye irritation*

Lacrimal irritation due to vapours.

Mixture causes serious eye irritation.

##### *Sensitisation*

Mixture may cause an allergic skin reaction.

##### *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.

##### *CMR effects*

Carcinogenicity:

Suspected of causing cancer.

##### *Specific target organ toxicity - single exposure*

Mixture may cause respiratory irritation.

Mixture may cause damage to organs.

##### *Specific target organ toxicity - repeated exposure*

This information is not available.

##### *Aspiration hazard*

This information is not available.

### 11.2 Further information

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Systemic effects:  
narcosis, blindness, Irreversible damage of the optical nerve.  
Other dangerous properties can not be excluded.  
Handle in accordance with good industrial hygiene and safety practice.

### Components

#### *formaldehyde*

##### *Acute oral toxicity*

LDLo Humans: 108 mg/kg

LD50 mouse: 42 mg/kg

LD50 guinea pig: 260 mg/kg

LD50 rat: 100 mg/kg

##### *Acute inhalation toxicity*

Acute toxicity estimate: 3,1 mg/l; vapour

Expert judgement

##### *Acute dermal toxicity*

Acute toxicity estimate : 300,1 mg/kg

Expert judgement

#### *methanol*

##### *Acute oral toxicity*

LDLO human: 143 mg/kg (RTECS)

LD50 rat: 5.628 mg/kg (IUCLID)

##### *Acute inhalation toxicity*

LC50 rat: 85,26 mg/l; 4 h (IUCLID)

##### *Acute dermal toxicity*

LD50 rabbit: ca. 17.100 mg/kg (External MSDS)

##### *Sensitisation*

Sensitisation test: guinea pig

Result: negative

(IUCLID)

##### *Germ cell mutagenicity*

##### *Genotoxicity in vivo*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(IUCLID)

##### *Genotoxicity in vitro*

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.

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#### 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

*formaldehyde*

No information available.

*methanol*

*Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 15.400 mg/l; 96 h (in soft water) (ECOTOX Database)

*Toxicity to daphnia and other aquatic invertebrates*

EC5 *E. sulcatum*: > 10.000 mg/l; 72 h (Lit.)

EC50 *Daphnia magna* (Water flea): > 10.000 mg/l; 48 h (IUCLID)

*Toxicity to algae*

EC50 *Pseudokirchneriella subcapitata* (green algae): ca. 22.000 mg/l; 96 h (External MSDS)

IC5 *Scenedesmus quadricauda* (Green algae): 8.000 mg/l; 8 d (IUCLID)

*Toxicity to bacteria*

EC5 *Pseudomonas fluorescens*: 6.600 mg/l; 16 h (IUCLID)

*Toxicity to fish (Chronic toxicity)*

NOEC *Oryzias latipes* (Orange-red killifish): 7.900 mg/l; 200 h  
(External MSDS)

*Biodegradability*

99 %; 30 d

OECD Test Guideline 301D

Readily biodegradable.

*Biochemical Oxygen Demand (BOD)*

600 - 1.120 mg/g (5 d)

(IUCLID)

*Chemical Oxygen Demand (COD)*

1.420 mg/g

(IUCLID)

*Theoretical oxygen demand (ThOD)*

1.500 mg/g

(Lit.)

*Ratio BOD/ThBOD*

BOD5 76 %

Closed Bottle test

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

*Stability in water*

2,2 yr

reaction with hydroxyl radicals (IUCLID)



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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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**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!

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**SECTION 15. Regulatory information**

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

*EU regulations*

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Major Accident Hazard Legislation 96/82/EC  
Directive 96/82/EC does not apply

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

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

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern above the respective regulatory limit (> 0.1 % (w/w) Regulation (EC) No 1907/2006 (REACH), Article 57).

*National legislation*

|| Storage class 6.1 D  
The data applies to the entire pack.

## 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.

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H370	Causes damage to organs.
H371	May cause damage to organs.

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**Full text of R-phrases referred to under sections 2 and 3**

R11	Highly flammable.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R34	Causes burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitisation by skin contact.
R68/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

**Training advice**

Provide adequate information, instruction and training for operators.

**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**

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.*