

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 18.10.2017

Version 8.1

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

Catalogue No. 100598
Product name Chlorine Test (free chlorine) Method: photometric, DPD 0.010 - 6.00 mg/l Cl₂ Spectroquant®
Cl₂-1

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

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

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number Please contact the regional company representation in your country.

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

Eye irritation, Category 2, H319

Reproductive toxicity, Category 1B, H360FD

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

2.2 Label elements**Labelling.(REGULATION (EC) No 1272/2008)***Hazard pictograms*

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Signal word

Danger

Hazard statements

H360FD May damage fertility. May damage the unborn child.

H319 Causes serious eye irritation.

Precautionary statements

Prevention

P201 Obtain special instructions before use.

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.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Restricted to professional users.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H360FD May damage fertility. May damage the unborn child.

Precautionary statements

P201 Obtain special instructions before use.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Contains: boric acid

2.3 Other hazards

None known.

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SECTION 3. Composition/information on ingredients

Chemical nature Mixture 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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boric acid ($\geq 50\%$ - $\leq 100\%$)

PBT/vPvB: Not applicable for inorganic substances

10043-35-3	01-2119486683-25-	
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Reproductive toxicity, Category 1B, H360FD

Ethylenedinitrilotetraacetic acid, Tetrasodiumsalt ($\geq 1\%$ - $< 3\%$)

64-02-8	*)	
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Acute toxicity, Category 4, H302

Serious eye damage, Category 1, H318

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

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

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

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

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.

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4.2 Most important symptoms and effects, both acute and delayed

irritant effects

drop in temperature, agitation, spasms, Diarrhoea, Nausea, Vomiting, Tiredness, ataxia (impaired locomotor coordination)

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

nitrogen oxides, Oxides of phosphorus

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 inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

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Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

Hygiene measures

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

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

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

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

boric acid (10043-35-3)

Worker DNEL, longterm	Systemic effects	inhalation	8,3 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	392 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	4,15 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	196 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	0,98 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	oral	0,98 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

boric acid (10043-35-3)

PNEC Fresh water	2,02 mg/l
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PNEC Marine water	2,02 mg/l
PNEC Aquatic intermittent release	13,7 mg/l
PNEC Sewage treatment plant	10 mg/l
PNEC Soil	5,4 mg/kg

8.2 Exposure controls

Engineering measures

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

See section 7.1.

Individual protection measures

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

Eye/face protection

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).

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

protective clothing

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic 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

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properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	powder
Colour	white
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 5 at 22 g/l 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)	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	soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.

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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

See section 10.3

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Risk of explosion with:

Acetic anhydride

Violent reactions possible with:

strong oxidising agents, Bases

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.

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 symptoms:., mucosal irritations

Acute dermal toxicity

This information is not available.

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Skin irritation

This information is not available.

Eye irritation

Mixture causes serious eye 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.

CMR effects

Teratogenicity:

May harm the unborn child.

Reproductive toxicity:

May impair fertility.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

After absorption of large quantities:

Vomiting, Nausea, Diarrhoea, agitation, spasms, Tiredness, ataxia (impaired locomotor coordination), drop in temperature

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Components

boric acid

Acute oral toxicity

LD50 Rat: 3.450 - 4.080 mg/kg (ECHA)

Acute inhalation toxicity

LC50 Rat: > 2,03 mg/l; 4 h ; dust/mist (highest concentration to be prepared)

OECD Test Guideline 403

Acute dermal toxicity

LD50 Rabbit: > 2.000 mg/kg (ECHA)

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Skin irritation

Rabbit
Result: No skin irritation
(ECHA)

Eye irritation

Rabbit
Result: slight irritation
OECD Test Guideline 405

Sensitisation

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

Germ cell mutagenicity

Genotoxicity in vivo
In vivo micronucleus test
Mouse
male and female
oral
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro

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

Mutagenicity (mammal cell test):
Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 476

Mutagenicity (mammal cell test):
Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 482

Teratogenicity

Application Route: Oral
Rat
Number of exposures: daily
Method: OECD Test Guideline 414

Ethylenedinitrilotetraacetic acid, Tetrasodiumsalt

Acute oral toxicity
LD50 Rat: 1.780 mg/kg (ECHA)

Skin irritation

Rabbit
Result: No irritation
OECD Test Guideline 404

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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

Discharge into the environment must be avoided.

Components

boric acid

Toxicity to fish

flow-through test LC50 Oncorhynchus mykiss (rainbow trout): 79 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): 133 mg/l; 48 h (ECOTOX Database)

Toxicity to algae

static test EC50 Pseudokirchneriella subcapitata (green algae): 52,4 mg/l; 74,5 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to fish (Chronic toxicity)

semi-static test NOEC Danio rerio (zebra fish): 6,4 mg/l; 34 d

OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC Daphnia magna (Water flea): 34,2 mg/l; 21 d

OECD Test Guideline 211

Biodegradability

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

Partition coefficient: n-octanol/water

log Pow: -0,2 (25 °C)

EPI Suite™

Bioaccumulation is not expected. (Lit.)

PBT/vPvB: Not applicable for inorganic substances

Ethylenedinitrilotetraacetic acid, Tetrasodiumsalt

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Toxicity to fish

static test LC50 *Lepomis macrochirus* (Bluegill sunfish): 121 mg/l; 96 h (ECHA) (in soft water)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 625 mg/l; 24 h
DIN 38412

SECTION 13. Disposal considerations

Waste treatment methods

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

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 - 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)

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

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

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

EU regulations

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

SEVESO III
Not applicable

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

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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 contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 59 above the respective regulatory concentration limit of > 0.1 % (w/w).

Contains: boric acid

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.

H302 Harmful if swallowed.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H360FD May damage fertility. May damage the unborn child.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



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Signal word

Danger

Hazard statements

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

Precautionary statements

Prevention

P201 Obtain special instructions before use.

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.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Further information

Restricted to professional users.

Contains: boric acid

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

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

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