

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 30.07.2018

Version 2.7

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

### 1.1 Product identifier

Catalogue No.	199003
Product name	Buffer solution (boric acid/potassium chloride/sodium hydroxide solution), traceable to SRM from NIST and PTB pH 9.00 (25°C) Certipur®

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 development and research For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.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	LS-QHC * 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.
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## 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.

Safety data sheet available on request.

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## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature                      Aqueous solution

### 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 ( $\geq 0,3 \%$ - $< 0,5 \%$ )		
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*PBT/vPvB: Not applicable for inorganic substances*

10043-35-3	01-2119486683-25-XXXX	Reproductive toxicity, Category 1B, H360FD
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For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

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

After eye contact: rinse out with plenty of water. Remove contact lenses.

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

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.

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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.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

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

#### *Unsuitable extinguishing media*

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

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

Not combustible.

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

#### *Special protective equipment for firefighters*

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

#### *Further information*

none

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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. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

No special precautionary measures necessary.

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## 6.3 Methods and materials for containment and cleaning up

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.

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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.

Recommended storage temperature see product label.

### 7.3 Specific end use(s)

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

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### **Derived No Effect Level (DNEL)**

##### *boric acid (10043-35-3)*

Worker DNEL, longterm	Systemic effects	inhalation	8,3 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	392 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	4,15 mg/m <sup>3</sup>

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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
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
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	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).

## *Respiratory protection*

Not required; except in case of aerosol formation.

## **Environmental exposure controls**

No special precautionary measures necessary.

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## **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	9,0 at 25 °C
Melting point	No information available.

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Boiling point/boiling range	100 °C at 1.013 hPa
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.
Density	1,00 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

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Explosive properties	Not classified as explosive.
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Oxidizing properties	none
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## 9.2 Other data

none

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## 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

Violent reactions possible with:

The generally known reaction partners of water.

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

no information available

### 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*

This information is not available.

#### *Acute inhalation toxicity*

This information is not available.

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## *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.

## *CMR effects*

Teratogenicity:

May damage the unborn child.

Reproductive toxicity:

May damage 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

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Hazardous properties cannot be excluded, but are relatively improbable due to the low concentration of the dissolved substance(s).

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.

Handle in accordance with good industrial hygiene and safety practice.

## 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

OECD Test Guideline 403

(highest concentration to be prepared)

#### *Acute dermal toxicity*

LD50 Rabbit: > 2.000 mg/kg

(ECHA)

#### *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*

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## *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

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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

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No information available.

## 12.4 Mobility in soil

No information available.

## 12.5 Results of PBT and vPvB assessment

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

## 12.6 Other adverse effects

### *Additional ecological information*

No ecological problems are to be expected when the product is handled and used with due care and attention.

## 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

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## *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

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

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

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 - 14.6	Not classified as dangerous in the meaning of transport regulations.
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### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 - 14.6	Not classified as dangerous in the meaning of transport regulations.
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### Sea transport (IMDG)

14.1 - 14.6	Not classified as dangerous in the meaning of transport regulations.
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### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

Major Accident Hazard	SEVESO III
Legislation	Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
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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
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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	10 - 13
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### 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.

H360FD	May damage fertility. May damage the unborn child.
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### Training advice

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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.*