

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Name of chemical substance:** pH7 standard solution 100-7
- **Article number:** 3200043637 (9003001700)
- **MSDS No:** 3
- **Application of the substance / the preparation** Calibration for pH electrode
- **Manufacturer/Supplier:**
HORIBA, Ltd.
2 Miyanohigashi, Kisshoin,
Minami-ku Kyoto, Japan, KYOTO
601-8510 JAPAN
techinfo.hor@jp.horiba.com
- **Further information obtainable from:** Water and Temperature Measurement R&D Dept.
- **Information in case of emergency:**
During normal opening times: +81 75 313-8121
USA Contact : Chemtrec (800) 424-9300

2 Hazards identification

- **Hazard description:** Not applicable.
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- **GHS label elements** Void

3 Composition/information on ingredients

- **Chemical characterization**
- **Description:** Mixture of substances listed below with nonhazardous additions.

· **Components:**

CAS: 7778-77-0 EINECS: 231-913-4	potassium dihydrogenorthophosphate	Nearly 0,34%
CAS: 7558-79-4 EINECS: 231-448-7	disodium hydrogenorthophosphate	Nearly 0,36%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **General information:** No special measures required.
- **After inhalation:**
Remove the victim to fresh air, and make him blow his nose and gargle. Refer for medical attention.
- **After skin contact:** Wash the affect areas under running water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 2)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

Name of chemical substance: pH7 standard solution 100-7

(Contd. of page 1)

- **After swallowing:**
Rinse mouth with water. Give the person one or two glasses of water, and let vomit. Refer for medical attention.

5 Fire-fighting measures

- **Suitable extinguishing agents:** This product is noncombustible.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:** Sweep up and place in a vessel. Flush residual area with water.
- **Additional information:** No dangerous substances are released.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Keep away from heat and direct sunlight.
Keep receptacles tightly sealed.
- **Information about fire - and explosion protection:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
- **Storage class:**
- **Class according to regulation on flammable liquids:** Void

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**
Provide good ventilation. Make available washbasin and eye wash near the work area.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:** Suitable respiratory protective device recommended.

(Contd. on page 3)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

Name of chemical substance: pH7 standard solution 100-7

(Contd. of page 2)

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended during refilling

· **Body protection:** Use protective suit.

9 Physical and chemical properties

· **General Information**

Form:	Liquid
Colour:	Colourless
Odour:	Odourless

· **Change in condition**

Melting point/Melting range:	0°C
Boiling point/Boiling range:	100°C

· **Flash point:** Not applicable.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C:** 1 g/cm³

· **Solubility in / Miscibility with water:** Fully miscible.

· **pH-value at 25°C:** 6,86

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Materials to be avoided:**

· **Dangerous reactions** No dangerous reactions known.

· **Dangerous decomposition products:** No dangerous decomposition products known.

EU

(Contd. on page 4)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

Name of chemical substance: pH7 standard solution 100-7

(Contd. of page 3)

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

7778-77-0 potassium dihydrogenorthophosphate

Oral	LD50	2000 mg/kg (mouse)
------	------	--------------------

7558-79-4 disodium hydrogenorthophosphate

Oral	LD50	17000 mg/kg (rat)
------	------	-------------------

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information

· **Additional ecological information:**

· **General notes:** Generally not hazardous for water

13 Disposal considerations

· **Product:**

· **Recommendation** Must be specially treated adhering to official regulations.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **Land transport ADR/RID (cross-border)**

· **ADR/RID class:** -

· **Maritime transport IMDG:**

· **IMDG Class:** -

· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:** -

· **UN "Model Regulation":** -

(Contd. on page 5)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

Name of chemical substance: pH7 standard solution 100-7

(Contd. of page 4)

· Transport/Additional information:

Cheak the containers are tightly sealed. Handle carefully so that they will not be damaged by falling or dropping. Keep away from water.

15 Regulatory information

· Labelling according to EU guidelines:

Observe the general safety regulations when handling chemicals.

The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

· National regulations:**· Classification according to VbF: Void****· Waterhazard class: Generally not hazardous for water.**

16 Other information

HORIBA, Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensives or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

HORIBA, Ltd. MAKES NO REPRESENTATION OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, HORIBA, Ltd. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

· Department issuing MSDS: Water and Temperature Measurement R&D Dept.**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· Sources

HANDBOOK OF ENVIROMENTAL DATA ON ORGANIC CHEMICALS (Karel Verschueren VAN NOSTRAND REINHOLD)

The Sigma-Aldrich Library Regulatory and Safety Data

Safety data sheet guidebook edited by the information center of the Society for Japan Chemical Industry

(Contd. on page 6)

Safety Data Sheet
according to 1907/2006/EC, Article 31

Printing date 21.09.2010

Revision: 21.09.2010

Name of chemical substance: pH7 standard solution 100-7

(Contd. of page 5)

· *** Data compared to the previous version altered.**

Date Feb. 13, 1998

Revised Dec. 13, 2009

Revised Sep. 21, 2010

EU

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 22.09.2010

Revision: 22.09.2010

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Name of chemical substance:** pH4 Standard Solution 100-4
- **Article number:** 3200043638 (9003001600)
- **MSDS No:** 4
- **Application of the substance / the preparation** Calibration for pH electrode
- **Manufacturer/Supplier:**
HORIBA, Ltd.
2 Miyanohigashi, Kisshoin,
Minami-ku Kyoto, Japan, KYOTO
601-8510 JAPAN
techinfo.hor@jp.horiba.com
- **Further information obtainable from:** Water and Temperature Measurement R&D Dept.
- **Information in case of emergency:**
During normal opening times: +81 75 313-8121
USA Contact : Chemtrec (800) 424-9300

2 Hazards identification

- **Hazard description:** Not applicable.
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- **GHS label elements** Void

3 Composition/information on ingredients

- **Chemical characterization**
- **Description:** Mixture of substances listed below with nonhazardous additions.

· **Components:**

877-24-7	potassium hydrogen phthalate	Nearly 1,0%
----------	------------------------------	-------------

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **General information:** No special measures required.
- **After inhalation:**
Remove the victim to fresh air, and make him blow his nose and gargle. Refer for medical attention.
- **After skin contact:** Wash the affected areas under running water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Give the victim water. If necessary, get medical attention.

EU

(Contd. on page 2)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 22.09.2010

Revision: 22.09.2010

Name of chemical substance: pH4 Standard Solution 100-4

(Contd. of page 1)

5 Fire-fighting measures

- **Suitable extinguishing agents:** This product is noncombustible.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** The protective equipment is worn.
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

7 Handling and storage

- **Handling:**
- **Information for safe handling:** No special measures required.
- **Information about fire - and explosion protection:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in a cool place.
- **Storage class:**
- **Class according to regulation on flammable liquids:** Void

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**
Provide good ventilation. Make available washbasin and eye wash near the work area.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:** Not required.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the

(Contd. on page 3)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 22.09.2010

Revision: 22.09.2010

Name of chemical substance: pH4 Standard Solution 100-4

(Contd. of page 2)

resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended during refilling

· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **General Information**

Form:	Liquid
Colour:	Colourless
Odour:	Odourless

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C

· **Flash point:** Not applicable.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C:** 1 g/cm³

· **Solubility in / Miscibility with water:** Fully miscible.

· **pH-value at 25°C:** 4,01

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

· **Materials to be avoided:**

· **Dangerous reactions** No dangerous reactions known.

· **Dangerous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

877-24-7 potassium hydrogen phthalate

Oral	LD50	3200 mg/kg (rat)
------	------	------------------

Dermal	LD50	1000 mg/kg (mouse)
--------	------	--------------------

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritating effect.

(Contd. on page 4)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 22.09.2010

Revision: 22.09.2010

Name of chemical substance: pH4 Standard Solution 100-4

(Contd. of page 3)

- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information

- **Additional ecological information:**
- **General notes:** Generally not hazardous for water

13 Disposal considerations

- **Product:**
- **Recommendation**
Dilute concentrate with water and neutralize afterwards with suitable alkali material (sodium hydroxide solution, lime). The formed neutral salts are relatively environment-friendly.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -

- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

- **UN "Model Regulation":** -

- **Transport/Additional information:**
Check the containers are tightly sealed. Handle carefully so that they will not be damaged by falling or dropping. Keep away from water.

15 Regulatory information

- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

- **National regulations:**
- **Classification according to VbF:** Void

(Contd. on page 5)

Safety Data Sheet according to 1907/2006/EC, Article 31

Printing date 22.09.2010

Revision: 22.09.2010

Name of chemical substance: pH4 Standard Solution 100-4

(Contd. of page 4)

· **Waterhazard class:** Generally not hazardous for water.

16 Other information

HORIBA, Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensives or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

HORIBA, Ltd. MAKES NO REPRESENTATION OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, HORIBA, Ltd. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

· **Department issuing MSDS:** Water and Temperature Measurement R&D Dept.· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· **Sources**

The MERCK Index 12th Edition

HANDBOOK OF ENVIRONMENTAL DATA ON ORGANIC CHEMICALS (Karel Verschueren VAN NOSTRAND REINHOLD)

Safety data sheet guidebook edited by the information center of the Society for Japan Chemical Industry

· *** Data compared to the previous version altered.**

Date Feb. 13, 1998

Revised Dec. 13, 2009

Revised Sep. 22, 2010

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

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

- **Product identifier**
- **Name of chemical substance:** 100-9 (Borate std. sol.)
- **Article number:** 3200043636 (9003001800)
- **MSDS No:** 11
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Calibration for pH electrode
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
HORIBA, Ltd.
2 Miyanohigashi, Kisshoin,
Minami-ku Kyoto, Japan, KYOTO
601-8510 JAPAN
techinfo.hor@jp.horiba.com
- **Further information obtainable from:** Liquid & Water Quality R&D Dept.
- **Emergency telephone number:** During normal opening times: +81 75 313-8121

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Not applicable.
Void
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- **Label elements**
- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of substances listed below with nonhazardous additions.

(Contd. on page 2)

EU

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 100-9 (Borate std. sol.)

(Contd. of page 1)


· **Components:**


CAS: 1303-96-4

EINECS: 215-540-4

Index number: 005-011-01-1

Disodium tetraborate, decahydrate

 T Repr. Cat. 2 R60-61

 Repr. 1B, H360

Nearly 0,2%

· **SVHC**

1303-96-4 Disodium tetraborate, decahydrate

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

· **Description of first aid measures**

· **General information:** No special measures required.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:** Wash the affect areas under running water.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse mouth with water. Give the person one or two glasses of water, and let vomit. Refer for medical attention.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

5 Firefighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** This product is noncombustible.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** The protective equipment is worn.

· **Environmental precautions:** No special measures required.

· **Methods and material for containment and cleaning up:**

Sweep up and place in a vessel. Flush residual area with water.

· **Reference to other sections** No dangerous substances are released.

7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

Keep receptacles tightly sealed.

Keep away from heat and direct sunlight.

· **Information about fire - and explosion protection:** No special measures required.

(Contd. on page 3)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 100-9 (Borate std. sol.)

(Contd. of page 2)

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
- **Storage class:**
- **Class according to regulation on flammable liquids:** Void
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**
Provide good ventilation. Make available washbasin and eye wash near the work area.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:** Suitable respiratory protective device recommended.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling
- **Body protection:** Use protective suit.

EU

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 100-9 (Borate std. sol.)

(Contd. of page 3)

9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form:	Liquid
Colour:	Colourless
Odour:	Odourless

· **Change in condition**

Melting point/Melting range:	0°C
Boiling point/Boiling range:	100°C

· **Flash point:** Not applicable.

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C:** 1 g/cm³

· **Solubility in / Miscibility with**

water: Fully miscible.

· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity**

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** No further relevant information available.

· **Incompatible materials:** No further relevant information available.

· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

EU

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 100-9 (Borate std. sol.)

(Contd. of page 4)

12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Dilute the chemical with a large amount of water and flush in a drain after confirming pH of the solution.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Cheak the containers are tightly sealed. Handle carefully so that they will not be damaged by falling or dropping. Keep away from water.

(Contd. on page 6)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 100-9 (Borate std. sol.)

(Contd. of page 5)

· **UN "Model Regulation":**

-

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations:**
- **Classification according to VbF:** Void
- **Waterhazard class:** Generally not hazardous for water.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

HORIBA, Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensives or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

HORIBA, Ltd. MAKES NO REPRESENTATION OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, HORIBA, Ltd. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

- **Relevant phrases**

H360 May damage fertility or the unborn child.

R60 May impair fertility.

R61 May cause harm to the unborn child.

- **Department issuing MSDS:** Water and Temperature Measurement R&D Dept.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

- **Sources**

HANDBOOK OF ENVIRONMENTAL DATA ON ORGANIC CHEMICALS (Karel Verschueren VAN NOSTRAND REINHOLD)

Safety data sheet guidebook edited by the information center of the Society for Japan Chemical Industry

The MERCK Index 12th Edition

- *** Data compared to the previous version altered.**

Date Jun. 3, 1998

Revised May. 09, 2012

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

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

- **Product identifier**
- **Name of chemical substance:** 300 (INTERNAL SOL. FOR REF ELECTRODE)
- **Article number:** 3200043640 (9003003200)
- **MSDS No:** 14
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Reference solution
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
HORIBA, Ltd.
2 Miyanohigashi, Kisshoin,
Minami-ku Kyoto, Japan, KYOTO
601-8510 JAPAN
techinfo.hor@jp.horiba.com
- **Further information obtainable from:** Liquid & Water Quality R&D Dept.
- **Emergency telephone number:**
During normal opening times: +81 75 313-8121
USA Contact : Chemtrec (800) 424-9300

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Not applicable.
Void
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- **Label elements**
- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of substances listed below with nonhazardous additions.

(Contd. on page 2)

EU

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: **300 (INTERNAL SOL. FOR REF ELECTRODE)**

(Contd. of page 1)

· Components:

CAS: 7447-40-7	potassium chloride	Nearly 25,0%
EINECS: 231-211-8		

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:**
Remove the victim to fresh air, and make him blow his nose and gargle. Refer for medical attention.
- **After skin contact:** Wash the affect areas under running water.
- **After eye contact:**
Immediately rinse the affected eyes with running water for at least 15 minutes, and refer for medical attention.
- **After swallowing:** Give the victim water. If necessary, get medical attention.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** This product is noncombustible.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
Sweep up and place in a vessel. Flush residual area with water.
- **Reference to other sections** No dangerous substances are released.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Keep receptacles tightly sealed.
Keep away from heat and direct sunlight.
- **Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.

(Contd. on page 3)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 300 (INTERNAL SOL. FOR REF ELECTRODE)

(Contd. of page 2)

- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from heat and direct sunlight.
- **Storage class:**
- **Class according to regulation on flammable liquids:** Void
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**
 - Provide good ventilation. Make available washbasin and eye wash near the work area.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**
 - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:** Suitable respiratory protective device recommended.
- **Protection of hands:**
 - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 - Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
 - Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
 - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
 - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling
- **Body protection:** Use protective suit.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Colour:	Colourless
Odour:	Odourless

(Contd. on page 4)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: **300 (INTERNAL SOL. FOR REF ELECTRODE)**

(Contd. of page 3)

- **Change in condition**
 - Melting point/Melting range:** Undetermined.
 - Boiling point/Boiling range:** Undetermined.
- **Flash point:** Not applicable.
- **Self-igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density:** Not determined.
- **Solubility in / Miscibility with water:** Fully miscible.
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

7447-40-7 potassium chloride

Oral	LD50	383 mg/kg (mouse)
------	------	-------------------

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: **300 (INTERNAL SOL. FOR REF ELECTRODE)**

(Contd. of page 4)

- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation** Must be specially treated adhering to official regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Check the containers are tightly sealed. Handle carefully so that they will not be damaged by falling or dropping. Keep away from water.
· UN "Model Regulation":	-

EU

(Contd. on page 6)

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.05.2012

Revision: 09.05.2012

Name of chemical substance: 300 (INTERNAL SOL. FOR REF ELECTRODE)

(Contd. of page 5)

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations:**
- **Classification according to VbF: Void**
- **Waterhazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.**
- **Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**

16 Other information

HORIBA, Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensives or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

HORIBA, Ltd. MAKES NO REPRESENTATION OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, HORIBA, Ltd. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

- **Department issuing MSDS: Water and Temperature Measurement R&D Dept.**
- **Abbreviations and acronyms:**
 - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 - IMDG: International Maritime Code for Dangerous Goods
 - IATA: International Air Transport Association
 - ICAO: International Civil Aviation Organization
 - GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
- **Sources**
 - The MERCK Index 12th Edition
 - HANDBOOK OF ENVIRONMENTAL DATA ON ORGANIC CHEMICALS (Karel Verschueren VAN NOSTRAND REINHOLD)
 - Safety data sheet guidebook edited by the information center of the Society for Japan Chemical Industry
- *** Data compared to the previous version altered.**
 - Date Feb. 13, 1998
 - Revised May. 09, 2012