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

1.1 Product identifier : DO sensor electrolyte

Substance name : Potassium hydroxide /
Dipotassium dihydrogen ethylenediaminetetraacetate dehydrate
CAS No. : 1310-58-3 / 25102-12-9
EC No : 215-181-3/ 677-802-8

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

DO sensor electrolyte

1.3 Details of the supplier of the safety data sheet:

Manufacture:

Name	Yokogawa Electric Corporation
Address	2-9-32 Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
Telephone	+81-422-52-5649
Website	http://www.yokogawa.com

Importer:

Name	Yokogawa Europe B.V. (Regional Headquarters in EU)
Address	Euroweg 2 , 3825 HD Amersfoort, The Netherlands
Postal Address	P.O. Box 163, 3800 AD Amersfoort, The Netherlands
Phone	+31-(0)88-4641000
Website	www.yokogawa.com/eu
E-Mail	info@nl.yokogawa.com

1.4 EMERGENCY TELEPHONE NUMBER:

+31-88-4641000

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

Hazard Class and Category Code(s): according to Regulation (EC) No 1272/2008 [CLP]

Skin corrosion/irritation, category 1; H314
Eye damage,category1; H318

Hazard Class and Category Code(s): according to JIS Z 7252(Japanese standard)

Skin corrosion/irritation, category 1; H314
Eye damage,category1; H318
Specific target organ toxicity (single exposure), category 2 H371 respiratory system

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Product identifier : DO sensor electrolyte

Substance name : Potassium hydroxide /
Dipotassium dihydrogen ethylenediaminetetraacetate dehydrate

CAS No. : 1310-58-3 / 25102-12-9
EC No : 215-181-3/ 677-802-8

Hazard pictograms :

Signal word : Danger

Hazard statements : H314; Causes severe skin burns and eye damage
H371; May cause damage to respiratory system

Precautionary statements :

P260 ;	Do not breathe mist/vapours/spray.
P280 ;	Wear protective gloves /eye protection.
P301 + P330 + P331;	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353;	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.

Supplemental Hazard information (EU) : Not applicable.

2.2.2 Labelling according to JIS Z 7252; 2014 and JIS Z 7253; 2012 (Japanese standard)

Product identifier : DO sensor electrolyte
Hazard pictograms :

Signal word : Danger
Hazard statements : Causes severe skin burns and eye damage
May cause damage to respiratory system

Precautionary statements :

Wear protective gloves /eye protection.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed: Call a POISONCENTER or doctor/physician

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Description of the mixture:

The concentrations of substances including non-hazardous components are listed below.

Substance name	CAS No.	EC No. / Index No.	Concentration	Classification according Regulation (EC) No. 1272/2008
Potassium hydroxide	1310-58-3	215-181-3 / 019-002-00-8	4.4%	Acute Tox. 4 H302 Skin Corr.1A.H314 (Specific Concentration limit, M-Factors) Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C< 5 % Skin Irrit. 2; H315: 0,5 % ≤ C< 2 % Eye Irrit. 2; H319: 0,5 % ≤ C < 2 %
EDTA・2K Dipotassium dihydrogen ethylenediaminetetraacetate dehydrate	25102-12-9	677-802-8	8.8%	Skin Irrt.2 H315 Eye Irrt.2 H319 STOT SE 3
Water	7732-18-5	231-791-2	Balance	Not Classified

SECTION 4: First aid measures

4.1 Description of first aid measures

General information : Consult a physician. Show this safety data sheet to the doctor in attendance.

Following inhalation : Remove to fresh air. Immediate medical attention is required.

Following skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Following eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Following ingestion : Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Refer to Section 2.2 and Section 11.

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, CO_2, foam, extinguishing powder.

Unsuitable extinguishing media : No information available

5.2 Special hazards arising from the substance or mixture

Potassium oxides.
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

5.3 Advice for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

6.2 Environmental precautions:

Be careful not discharged to surface or ground water.

6.3 Methods and material for containment and cleaning up

For containment : Put in suitable, closed containers or plastic bags for disposal.
For cleaning up : Soak up with inert absorbent material and dispose of as hazardous waste.

6.4 Reference to other sections

For disposal refer to section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures : Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Advice on general occupational hygiene : Wash hands thoroughly after handling.
Not to eat, drink and smoke in work areas.

7.2 Conditions for safe storage, including any incompatibilities

Further information on storage conditions:
Keep in cool and dried place, away from direct sunlight.

7.3 Specific end uses

Refer to section 1.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Not applicable.

8.2 Exposure controls

Use the syringe for replacing electrolyte (DO sensor maintenance parts).

Personal protective equipment:
Eye / Face protection : Safety glasses recommended.
Skin protection : Protective gloves impervious to water recommended.
Respiratory protection : Not required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance
Physical state : Liquid
Colour : Colourless and clear
Odour : Odourless

pH : strongly basic.
Melting point / freezing point : 295-300 degree.(decomposition)
Initial boiling point /boiling range : No data available
Flash point : No data available
Evaporation rate : No data available
Flammability (solid, gas) : No data available

Upper/lower flammability or explosive limits
Upper : No data available
Lower : No data available
Vapour pressure : No data available
Vapour density : No data available
Relative density : approx.1.05
Solubilities : water , ethanol ; miscible
Partition coefficient(n-octanol/water) : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
Explosive properties : No data available
Oxidising properties : No data available

9.2 Other information:

Physical hazards: No data available

SECTION 10: Stability and reactivity

10.1 Reactivity : No data available

10.2 Chemical stability : Stable under recommended storage conditions. Refer to section7.

10.3 Possibility of hazardous reactions : No data available

10.4 Conditions to avoid : Extremes of temperature and direct sunlight.

10.5 Incompatible materials : Acidic substances.

10.6 Hazardous decomposition products : No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

(a) acute toxicity ; ATEmix(oral) = 4534mg/kg (RAT) (Refer to Section16)
ATEmix (dermal) = no data available

ATEmix (Inhalation) = no data available

(b) skin corrosion/irritation	; No data available but classified into category1.(Refer to Section16)
(c) serious eye damage/irritation	; No data available but classified into category1.Because skin corrosion is category 1.
(d) respiratory or skin sensitization	; No data available
(e) germ cell mutagenicity	; No data available
(f) carcinogenicity	; No data available
(g) reproductive toxicity	; No data available.
(h) STOT-single exposure	; No data available
(i) STOT-repeated exposure	; No data available
(j) aspiration hazard	; No data available

11.2 Other information
When used and handled according to specifications, the product does not have any harmful effects.

SECTION 12: Ecological information

12.1 Toxicity:

Aquatic toxicity :No information available as mixture.
(Information of single component)
Potassium hydroxide
Algae/aquatic plants : No data available
Fish: LC50 : Gambusia affinis 80 mg/L 96 h
EC50 : No data 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 : Not applicable.

12.6 Other adverse effects:
No ecological problems are to be expected when the product is handled and used with due care and attention.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product / Packaging disposal:

Disposal should be in accordance with applicable regional, national and local laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose the special waste.

Empty ampoules can be treated like household refuse.

Waste codes / waste designations according to EWC:
16 03 03; inorganic wastes containing dangerous substances

SECTION 14: Transport information

	Land transport (ADR/RID)	Inland waterway transport (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN No.	1814	1814	1814	1814
14.2 UN Proper shipping name	Potassium hydroxide solution	Potassium hydroxide solution	Potassium hydroxide solution	Potassium hydroxide solution
14.3 Transport hazard class(es)	8	8	8	8
14.4 Packing group	Ⅱ	Ⅱ	Ⅱ	Ⅱ
14.5 Enviromental hazards	Not applicable	Not applicable	Not applicable	Not applicable

14.6 Special precautions for user

Not applicable

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

Not applicable

SECTION 15: Regulatory information

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

This product is classified in Skin corrosion/irritation, category 1B and Eye damage,category1 according to regulation EC 1272/2008 [CLP].

Other regulations, limitations and prohibitive regulations
No data available.

Observe the normal safety regulations when handling chemicals.

15.2 Chemical Safety Assessment:

For this product a chemical safety assessment is not required.

SECTION 16: Other information

16.1 Indication of changes

Revised on 27th July 2022 (Rev.1.01):
- Deleting a department name in Section 1.3
- Changing Telephone number in Section 1.3
- Correcting CAS No. and EC No. of Potassium hydroxide in Section 3.1

Issued at 5th August 2016 (Ver1.00)

16.2 Abbreviations and acronyms:

No information available.

16.3 Key literature references and sources for data

SDS provided by Wako Pure Chemical Industries, Ltd
- W01W0116-0388 JGHEEN 1mol/l Potassium Hydroxide Solution (Version 2)

SDS provided by DOJINDO LABORATORIES.
- K001 EDTA・2K 07.10.2010

16.4 Classification for mixtures and used evaluation method according to regulation (EC) 1207/2008 [CLP]:

16.4.1 Acute toxiciy

This mixture product is not classified as acute toxicity hazard categories. It is according to section 3.1.3.6.1.of regulation (EC) 1207/2008 [CLP]. (Related to section 11 in this SDS.)

ATEmix is calculated as below;

$$\text{ATEmix(oral)} = \frac{100}{\sum_{n}\frac{Ci}{ATEi}} = \frac{100}{4.4/284 + 8.8/2000} = 5027\text{mg/kg (RAT)}$$

[Used data]
- Potassium hydroxide concentration=4.4% (Refer to Section3.1)
- EDTA・2K concentration=8.8% (Refer to Section3.1)
- Potassium hydroxide Oral LD50 284mg/kg(RAT)
- EDTA・2K Oral LD50=2000-2800 mg/kg(RAT)

16.4.2 Skin corrosion

This mixture product is classified into skin corrosion hazard category1. It is according to Table 3.2.4(Section3.2.3) of regulation (EC) 1207/2008 [CLP] (Related to section 11 in this SDS.)
Concentration limit is ≥1% in category 1 about “base with pH ≥ 11,5”.

16.5 Further information:

The information provided in this Safety Data Sheet is based on the present state of knowledge and is believed to be correct. Its purpose is to characterize the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.