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

1.1 Product identifier : Reagent for quinhydrone standard solution

Substance name : Quinhydrone / Potassium hydrogen phthalate/ Potassium chloride
CAS No. : 106-34-3 / 877-24-7 / 7447-40-7
EC No : 203-387-6 / 212-889-4 / 231-211-8

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

Used for checking ORP sensor

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
Phone	81-422-52-5649 (Analyzer Marketing Dept., Sensing Center, YPHQ)
Website	http://www.yokogawa.com

Importer (only in Europe):

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 (only in Europe):

+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]
Not classified.

Hazard Class and Category Code(s): according to JIS Z 7252: 2014 (Japanese standard)
Eye irritation, category 2B

2.2 Label elements

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

Product identifier: Reagent for quinhydrone standard solution

Substance name : Quinhydrone / Potassium hydrogen phthalate/ Potassium chloride
CAS No. : 106-34-3 / 877-24-7 / 7447-40-7
EC No : 203-387-6 / 212-889-4 / 231-211-8

Hazard pictograms : Not classified
Signal word : Not classified
Hazard statements : Not classified
Precautionary statements : Not classified
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 : Reagent for quinhydrone standard solution
Hazard pictograms : Not classified
Signal word : Warning
Hazard statements : Causes eye irritation (H320)
Precautionary statements : Wash hands thoroughly after handling.(P264)
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do.
Continue rinsing.(P305＋P351＋P338)
If eye irritation persists: Get medical advice/attention.
(P337+P313)

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.

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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.	Concentration	Classification according Regulation (EC) No. 1272/2008
Quinhydrone	106-34-3	203-387-6	Approx. 1%	Acute Tox. 3 H301 Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT SE 3 H335
Potassium hydrogen phthalate	877-24-7	212-889-4	Approx. 6%	Not Classified
Potassium chloride	7447-40-7	231-211-8	Approx. 92~93%	Not Classified

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SECTION 4: First aid measures

4.1 Description of first aid measures

General information : No information available.
Following inhalation : No information available.
Following skin contact : Wash with water.
Following eye contact : Rinse opened eye for several minutes under running water.
Following ingestion : Rinse out mouth and then drink plenty of water.
In case of persistent symptoms consult doctor.

4.2 Most important symptoms and effects, both acute and delayed

No special information available

4.3 Indication of any immediate medical attention and special treatment needed

No special 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

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. Special protective equipment is not required.

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 : Pick up the materials and wash the spill site with water.

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 : No special measures required.
Advice on general occupational hygiene : 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

No special measures required.

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 : Crystalline powder
Colour : White and a small amount of dark green are mixed.

Odour : Odourless

pH : No data available (approx.4 if dissolved in water)
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	**:** 1.636 (20 degree)
Solubilities	**:** water; freely soluble (7.4g/100ml at 20 degree) ethanol and diethyl ether; slightly soluble
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

(Reference information, ORP: approx.200~300mV if dissolved in water)

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 : High temperature and high humidity conditions are not recommended.
It's not hazardous but may reduce the quality.

10.5 Incompatible materials **:** No data available

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)	= 22500mg/kg(Refer to Section16)
	ATEmix (dermal)	= No data available
	ATEmix (Inhalation)	= No data available

(b) skin corrosion/irritation	; No data available
(c) serious eye damage/irritation	; No data available
(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 Chloride

Algae/aquatic plants :	EC50 :	Desmodesmus subspicatus 2500 mg/L 72 h
Fish:	LC50 :	Lepomis macrochirus 1060 mg/L 96 h
Crustacea:	EC50 :	Daphnia magna 825 mg/L 48 h

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
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.

12.6 Endocrine disrupting properties
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12. 7 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 04 / inorganic wastes other than those mentioned in 16 03 03
(cf.16 03 03; inorganic wastes containing dangerous substances)

SECTION 14: Transport information

Non-hazardous material. Not subject to transport regulations

	Land transport (ADR/RID)	Inland waterway transport (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN No.	-	-	-	-
14.2 UN Proper shipping name	Non-hazardous material	Non-hazardous material	Non-hazardous material	Non-hazardous material
14.3 Transport hazard class(es)	-	-	-	-
Hazard label(s)	-	-	-	-
14.4 Packing group	-	-	-	-
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

Not applicable.
The material is not subject to classification according to regulation EC 1272/ 2008 [CLP].
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 29th December 2025 (Rev.1.03):
Change of department name in Section 1.3
Addition of information to Section 2.3, 12.5 and 12.6
Revised on 24th December 2020 (Rev.1.02):
Change of manufacture's phone number in Section 1.3

Revised on 18th August 2016 (Rev.1.01):
Change of product identifier in section 1 and section 2.
Change of manufacture's telephone number in section1.3
Addition of classification and label elements according to Japanese standard in section 2
Issued on 31st March 2016 (Rev.1.00)

16.2 Abbreviations and acronyms:
ORP: Oxidation-Reduction Potential

16.3 Key literature references and sources for data

Summary of Classification and Labelling in the ECHA classification and labelling inventory

SDS provided by Wako Pure Chemical Industries, Ltd
W01W0116-0354 JGHEEN Potassium Chloride (Version 1.01)
W01W0116-0382 JGHEEN Potassium Hydrogen Phthalate (Version 1)
W01W0117-0009 JGHEEN Quinhydrone (Version 1.01)

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

This mixture product is not classified in 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.)

(i) Potassium Hydrogen Phthalate and Potassium Chloride are ignored because Oral LD50 is over 2000mg/kg(RAT).

[Used data]
Potassium Hydrogen Phthalate Oral LD50>3200 mg/kg(RAT)
Potassium Chloride Oral LD50=2600 mg/kg(RAT)

(ii) ATEmix is calculated as below;

ATEmix(oral) = $\frac{100}{\sum_{n}\frac{Ci}{ATEi}} = \frac{100}{1/225}$ =22500mg/kg

[Used data]
Quinhydrone concentration=approx.1% (Refer to Section3.1)
Quinhydrone Oral LD50=225mg/kg(RAT)

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.