SAFETY DATA SHEET

Revision Date 25-Feb-2025 **WAI1 - AGHS - OSHA** **Revision Number** 8

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product Identifier

Product Name	Ross Reference Electrode Solution
Product No	2001F4
Synonyms	219613-A01
Pure substance/mixture	Mixture

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

Recommended Use	Use as laboratory reagent
Uses advised against	No information available
Manufacturer, importer, supplier	Thermo Fisher Scientific© Water and Lab Products 22 Alpha Road Chelmsford, MA 01824, USA 1-978-232-6000
Emergency Telephone	24 Hour Emergency Phone Number CHEMTREC® Within USA and Canada: 1-800-424-9300 Outside USA and Canada: 1-703-527-3887 (collect calls accepted)
E-mail address	wlp.techsupport@thermofisher.com
Made in	USA

2. Hazards Identification

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Reproductive Toxicity	Category 1B

Label Elements

Emergency Overview

Signal Word Danger

Hazard Statements May damage fertility or the unborn child
Very toxic to aquatic life

Appearance Amber **Physical State** Liquid **Odour** None

Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection

Response
IF exposed or concerned: Get medical attention/advice
Specific treatment (see supplemental instructions on the administration of antidotes on this label)

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse

Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Storage
Store locked up

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
No information available

Other Information
Very toxic to aquatic organisms

3. Composition/information on Ingredients

Component	CAS No	Weight percent
Potassium iodide (KI)	7681-11-0	60 - 70%
Water	7732-18-5	30 - 40%
Boric acid (H3BO3)	10043-35-3	1-3
Iodine	7553-56-2	0.1 - 1.0%
Potassium hydroxide	1310-58-3	<0.1%

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General Advice If symptoms persist, call a doctor.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a doctor.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Self-Protection of the First Aider Use personal protective equipment as required. See section 8 for more information. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects None reasonably foreseeable

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

SECTION 5: Firefighting measures

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

Unsuitable Extinguishing Media
No information available

Specific Hazards Arising from the Chemical
No information available.

Explosion Data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information. Vapours may accumulate to form explosive concentrations.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

7. Handling and Storage

Precautions for Safe Handling

Handling Wear personal protective equipment/face protection
Ensure adequate ventilation
Do not get in eyes, on skin, or on clothing
Avoid ingestion and inhalation

Conditions for Safe Storage, Including any Incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place
Store at room temperature in the original container
Protect from direct sunlight

Incompatible Products No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Potassium iodide (KI) 7681-11-0	TWA: 0.01 mg/m³ Skin	-	-
Boric acid (H3BO3) 10043-35-3	TWA: 2 mg/m³ STEL: 6 mg/m³	-	-
Iodine 7553-56-2	TWA: 0.001 ppm Skin	Ceiling: 0.1 ppm Ceiling: 1 mg/m³	IDLH: 2 ppm Ceiling: 0.1 ppm

		(Vacated) Ceiling: 0.1 ppm (Vacated) Ceiling: 1 mg/m³	Ceiling: 1 mg/m³
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m³	(Vacated) Ceiling: 2 mg/m³	Ceiling: 2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH - National Institute for Occupational Safety and Health

Appropriate engineering controls

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location

Individual protection measures, such as personal protective equipment

Eye/face Protection Wear chemical splash goggles and face shield. If splashes are likely to occur:. Face protection shield.

Skin and Body Protection Wear protective gloves/protective clothing.

Respiratory Protection None under normal use conditions. In case of inadequate ventilation wear respiratory protection.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Amber
Odour	None
Odour Threshold	No information available
pH	7.15
PH Range	5.65 - 8.65

Property	**Values**	**Remarks • Method**
Melting point/freezing point	No information available	
Boiling point/range	100 °C / 212 °F	
Flash Point	N/A	
Evaporation Rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit	No information available	
Vapour pressure	No information available	
Vapour Density	No information available	
Specific Gravity	No information available	
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition Temperature	-	
Decomposition Temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive Properties	No information available	

Oxidising Properties No information available

Other Information

Softening Point No information available
Molecular Weight No information available
VOC Content(%) No information available
Density No information available
Bulk Density No information available

10. STABILITY AND REACTIVITY

Reactivity
No information available

Chemical Stability
Stable under normal conditions

Possibility of Hazardous Reactions
None under normal processing

Conditions to Avoid
Extremes of temperature and direct sunlight.

Incompatible Materials
No information available

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating gases and vapours.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation No information available

Eye Contact No information available

Skin Contact No information available

Ingestion No information available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium iodide (KI) 7681-11-0	-	LD50 > 2000 mg/kg (Rat)	-
Water 7732-18-5	LD50 > 90 mL/kg (Rat)	-	-
Boric acid (H3BO3) 10043-35-3	LD50 = 2660 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	LC50 > 2.12 mg/L (Rat) 4 h
Iodine 7553-56-2	LD50 = 14 g/kg (Rat)	LD50 = 1425 mg/kg (Rabbit) LD50 > 2000 mg/kg (Rabbit)	LC50 > 4.588 mg/L (Rat) 4 h
Potassium hydroxide 1310-58-3	LD50 = 284 mg/kg (Rat)	-	-

Information on Toxicological Effects

Symptoms No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

(b) skin corrosion/irritation; Category 2.
Sensitisation No information available

Mutagenic Effects No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA
Potassium iodide (KI)	7681-11-0	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed
Boric acid (H3BO3)	10043-35-3	Not listed	Not listed	Not listed	Not listed
Iodine	7553-56-2	Not listed	Not listed	Not listed	Not listed
Potassium hydroxide	1310-58-3	Not listed	Not listed	Not listed	Not listed

Reproductive Effects No information available

STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard No information available

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .
ATEmix (oral) 750 mg/kg
ATEmix (inhalation-dust/mist) 13 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Component	Freshwater Algae	Freshwater Fish	Water Flea
Potassium iodide (KI) 7681-11-0	-	LC50: > 100 mg/L, 96h static (Danio rerio)	-
Boric acid (H3BO3) 10043-35-3	-	LC50: = 1020 mg/L, 72h flow-through (Carassius auratus)	EC50: 115 - 153 mg/L, 48h (Daphnia magna)
Iodine 7553-56-2	-	LC50: = 1.67 mg/L, 96h static (Oncorhynchus mykiss)	-
Potassium hydroxide 1310-58-3	-	LC50: = 80 mg/L, 96hr static (Gambusia affinis)	-

Persistence and Degradability
No information available

Bioaccumulation
No information available

Mobility

Component	log Pow
Boric acid (H3BO3) 10043-35-3	-1.09
Potassium hydroxide 1310-58-3	0.65 0.83

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste disposal methods Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Component	CAWAST
Boric acid (H3BO3) 10043-35-3	Toxic
Potassium hydroxide 1310-58-3	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. Regulatory Information

International Inventories

United States of America Inventory	Complies
CANINV	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:
USINV/ TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
CANINV/ DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier II reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Potassium hydroxide 1310-58-3	1000 lb	-	-	X

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	RQ
Potassium hydroxide 1310-58-3	1000 lb	-	1000 lb 454 kg

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
Boric acid (H3BO3) 10043-35-3	X	-	-
Iodine 7553-56-2	X	X	X
Potassium hydroxide 1310-58-3	X	X	X

U.S. EPA Label Information
No information available

16. Other Information

Prepared By Regulatory Affairs

Prepared For Thermo Fisher Scientific Inc.©

Issue Date No information available

Revision Date 25-Feb-2025

Reason for revision SDS sections updated.

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet