

MOEL's Public Notice No. 2016-19 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

WAI4 - KGHS - KOREAN

Issue Date 05-Sep-2019

Revision Date 05-Sep-2019

Revision Number 1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name Reference Solution, PHR ROSS

Product No RCPHR-60

Pure substance/mixture Mixture

Contains Potassium Hydroxide

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

Recommended Use Use as laboratory reagent

Uses advised against No Information available

Supplier

Fisher Scientific Korea	Thermo Fisher Scientific©
D5,D6, Incheon Airport Logistics	Water and Lab Products
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Emergency Telephone Number

Emergency telephone: Medical: +(82) 070-7686-0086 or + 1-703-741-5970
CHEMTREC: 1-800-424-9300 or + 1-703-527-3887
Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

Made in USA

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Physical hazards

Based on available data, the classification criteria are not met

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Health hazards

Acute Oral Toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation

Category 4
Category 2
Category 2

Environmental hazards

Based on available data, the classification criteria are not met

Label Elements



Signal Word

Warning

Hazard Statements

H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary Statements

Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
P362 - Take off contaminated clothing and wash before reuse
P362 + P364 - Take off all contaminated clothing and wash it before reuse
P337 + P313 - If eye irritation persists: Get medical advice/ attention

Storage

P403 - Store in a well-ventilated place
P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards

NFPA

Health
2

Flammability
0

Instability
0

Physical hazards
N/A

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

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Component	Common Name	CAS-No	Index No.	Weight %
Water	No information available	7732-18-5	KE-35400	50 - 60
Potassium Iodide	No information available	7681-11-0	KE-29149	40 - 50
Potassium Hydroxide	No information available	1310-58-3	KE-29139	1.5 - 2
Boric Acid	No information available	10043-35-3	KE-03499	0.5 - 1
Iodine	No information available	7553-56-2	KE-21023	0.1 - 0.5

SECTION 4: FIRST AID MEASURES

First aid measures

General Advice	If symptoms persist, call a physician.
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 physician.
Inhalation	Move 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. 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
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically
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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

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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.
Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

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 labeled containers.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Handling Wear personal protective equipment
 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
 Keep away from direct sunlight

Incompatible Products No information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	CAS-No	Korea	ACGIH TLV	OSHA PEL
Water	7732-18-5	Not listed	Not listed	Not listed
Potassium Iodide	7681-11-0	Not listed	TWA: 0.01 ppm	Not listed
Potassium Hydroxide	1310-58-3	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	(Vacated) Ceiling: 2 mg/m ³
Boric Acid	10043-35-3	Not listed	TWA: 2 mg/m ³ STEL: 6 mg/m ³	Not listed
Iodine	7553-56-2	STEL: 0.1 ppm TWA: 0.01 ppm	TWA: 0.01 ppm STEL: 0.1 ppm	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³ (Vacated) Ceiling: 0.1 ppm (Vacated) Ceiling: 1 mg/m ³

Component	CAS-No	European Union	The United Kingdom	Germany
Water	7732-18-5	Not listed	Not listed	Not listed
Potassium Iodide	7681-11-0	Not listed	Not listed	Not listed
Potassium Hydroxide	1310-58-3	Not listed	STEL: 2 mg/m ³ 15 min	Not listed
Boric Acid	10043-35-3	Not listed	Not listed	TWA: 0.5 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 10 mg/m ³ (8 Stunden). MAK Höhepunkt: 10 mg/m ³
Iodine	7553-56-2	Not listed	STEL: 0.1 ppm 15 min STEL: 1.1 mg/m ³ 15 min	Haut

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Biological Exposure Indices

Component	CAS-No	Biological Exposure Indices
Water	7732-18-5	Not listed
Potassium Iodide	7681-11-0	Not listed
Potassium Hydroxide	1310-58-3	Not listed
Boric Acid	10043-35-3	Not listed
Iodine	7553-56-2	Not listed

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

Personal protective equipment Use only those certified by the Korea Occupational Safety and Health Administration.

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

Skin and Body Protection Wear protective gloves/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.

Environmental exposure controls No information available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Dark brown
Odor	Odorless
Odor Threshold	No information available
pH	7.0
PH Range	6.4-7.6

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point/freezing point	No information available	
Boiling Point/Range	No information available	
Flash Point (High in °C)	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	
Vapor pressure	No information available	
Vapor 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	

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Oxidizing 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

SECTION 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 vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Information

Information on likely routes of exposure

Inhalation	Not an expected route of exposure.
Ingestion	May be harmful if swallowed.
Eyes	Avoid contact with eyes. Irritating to eyes.
Skin	Avoid contact with skin. May cause irritation.

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; Sensitization Category 2.
No information available

Mutagenic Effects No information available

Carcinogenicity No information available.

Reproductive Effects No information available

STOT - single exposure No information available

STOT - repeated exposure No information available

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Target Organs None known.

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) 1072 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

45.05% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Component	Freshwater Algae	Freshwater Fish	Water Flea
Potassium Hydroxide 1310-58-3	-	LC50: = 80 mg/L, 96h static (Gambusia affinis)	-
Boric Acid 10043-35-3	-	LC50: = 1020 mg/L, 72h flow-through (Carassius auratus)	EC50: 115 - 153 mg/L, 48h (Daphnia magna)

Persistence and Degradability

No information available

Bioaccumulation/ Accumulation

No information available

Mobility

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Component	log Pow
Potassium Hydroxide 1310-58-3	0.83
Boric Acid 10043-35-3	-0.757

Other adverse effects

No information available

SECTION 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.

SECTION 14: TRANSPORT INFORMATION

Road and Rail Transport Not Regulated

IATA Not regulated

IMDG/IMO Not regulated
Marine Pollutant Not Applicable

Special Precautions for User No special precautions required

SECTION 15: REGULATORY INFORMATION

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

Legend: X - Listed '-' - Not Listed

International Inventories

Component	CAS-No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	AICS
Water	7732-18-5	KE-35400	X	231-791-2	X	X	-	X	-	X
Potassium Iodide	7681-11-0	KE-29149	X	231-659-4	X	X	-	X	X	X
Potassium Hydroxide	1310-58-3	KE-29139	X	215-181-3	X	X	-	X	X	X
Boric Acid	10043-35-3	KE-03499	X	233-139-2	X	X	-	X	X	X
Iodine	7553-56-2	KE-21023	X	231-442-4	X	X	-	X	-	X

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Not applicable	Not applicable	Annex I - Y35
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Water	7732-18-5	Listed	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Listed	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Listed	Not applicable	Not applicable
Boric Acid	10043-35-3	Listed	Not applicable	Not applicable
Iodine	7553-56-2	Listed	Not applicable	Not applicable

Korean National Regulations

Component	CAS-No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Water	7732-18-5	Annex 1 - KE-35400 Exempt (Index No. 25)	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Annex 1 - KE-29149	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Annex 1 - KE-29139	Not applicable	Listed
Boric Acid	10043-35-3	Annex 1 - KE-03499	Not applicable	Listed
Iodine	7553-56-2	Annex 1 - KE-21023	Not applicable	Not applicable

Component	CAS-No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	97-1-137 (>5%)	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable	Not applicable

Component	CAS-No	Chemical Control Act - Accident Precaution Chemicals (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable

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Iodine	7553-56-2	Not applicable	Not applicable	Not applicable
Component	CAS-No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable	Not applicable

Component	CAS-No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Listed	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Listed	Not applicable	Not applicable

Component	CAS-No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Listed	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Listed	Listed	Not applicable

Component	CAS-No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Ceiling: 2 mg/m ³	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	STEL: 0.1 ppm TWA: 0.01 ppm	Not applicable

National Fire Association - Dangerous Substances Minimum quantity requiring a permit

Component	CAS-No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Water	7732-18-5	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Control Parameters

Component	CAS-No	Korea	Biological Exposure Indices
Water	7732-18-5	Not listed	Not listed
Potassium Iodide	7681-11-0	Not listed	Not listed
Potassium Hydroxide	1310-58-3	Ceiling: 2 mg/m ³	Not listed
Boric Acid	10043-35-3	Not listed	Not listed
Iodine	7553-56-2	STEL: 0.1 ppm	Not listed

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		TWA: 0.01 ppm	
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US Management Information

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS-No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Water	7732-18-5	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable

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	CAS-No	CERCLA EHS RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Water	7732-18-5	Not applicable	Not applicable	Not applicable
Potassium Iodide	7681-11-0	Not applicable	Not applicable	Not applicable
Potassium Hydroxide	1310-58-3	Not applicable	1000 lb	Not applicable
Boric Acid	10043-35-3	Not applicable	Not applicable	Not applicable
Iodine	7553-56-2	Not applicable	Not applicable	Not applicable

CLP Classification - Regulation (EC) No 1272/2008

Danger.

H302 - Harmful if swallowed. H315 - Causes skin irritation. H319 - Causes serious eye irritation. H360FD - May damage fertility. May damage the unborn child.

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P312 - Call a POISON CENTER or doctor/physician if you feel unwell. P302 + P352 - IF ON SKIN: Wash with plenty of soap and water. P337 + P313 - If eye irritation persists: Get medical advice/ attention. P201 - Obtain special instructions before use. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.

SECTION 16: OTHER INFORMATION

Prepared By	Regulatory Affairs
Prepared For	Thermo Fisher Scientific Inc.©
Issue Date	05-Sep-2019
Revision Date	05-Sep-2019
Reason for revision	Initial Release.

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Disclaimer

IMPORTANT: The information contained in this SDS is correct to the best of our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties of any kind as to the accuracy or completeness of the information contained herein or the merchantability or fitness of the product or this information for a particular purpose. It is the responsibility of each individual buyer/user to determine the suitability of this information and the product for its intended purposes. Product sales are subject to Thermo Fisher Scientific's standard terms and conditions of sale. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions, or is altered in any way. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable government requirements. Since conditions of use of the product are not under direct control of Thermo Fisher Scientific, it is the

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End of Safety Data Sheet