

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
Revision date 26-Feb-2024  
Revision Number 2.04

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Nessler's Solution
Product Code	143-04481

**Supplier** FUJIFILM Wako Pure Chemical Corporation  
1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan  
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**Emergency telephone number** +81-6-6203-3741 / +81-3-3270-8571

**Recommended uses** For research use only

**Restrictions on use** Seek expert judgment when using for purposes other than those recommended.

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

## Classification of the substance or mixture

Acute toxicity - Oral

Category 4

Skin corrosion/irritation

Category 1

Serious eye damage/eye irritation

Category 1

Skin sensitization

Category 1

Reproductive Toxicity

Category 1B (additional)

Specific target organ toxicity (single exposure)

Category 1

Category 1 respiratory system, thyroid gland

Specific target organ toxicity (repeated exposure)

Category 1

Category 1 skin, thyroid gland, systemic toxicity

## Pictograms



Signal word

Danger

## Hazard statements

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H302 - Harmful if swallowed

H360 - May damage fertility or the unborn child

H362 - May cause harm to breast-fed children

H317 - May cause an allergic skin reaction

H370 - Causes damage to the following organs: respiratory system, thyroid gland

H372 - Causes damage to the following organs through prolonged or repeated exposure: skin, thyroid gland, systemic toxicity

## 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
- Do not breathe dust/fume/gas/mist/vapors/spray
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves

**Precautionary statements-(Response)**

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- Immediately call a POISON CENTER or doctor/physician
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- If skin irritation or rash occurs: Get medical advice/attention
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- Do NOT induce vomiting

**Precautionary statements-(Storage)**

- Store locked up

**Precautionary statements-(Disposal)**

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

**Others**

**Other hazards** Not available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Single Substance or Mixture** Mixture

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Water	<75	18.02	-	N/A	7732-18-5
Sodium Hydroxide	20.5	40.00	(1)-410	*	1310-73-2
Mercury(II) iodide	3.6	454.40	(1)-738	*	7774-29-0
Potassium iodide	2.6	166.00	(1)-439	*	7681-11-0

**Note on ISHL No.:** \* in the table means announced chemical substances.

### Section 4: FIRST AID MEASURES

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**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.

**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.

**Protection of first-aiders**

Use personal protective equipment as required.

### Section 5: FIRE FIGHTING 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 product**

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

**Special extinguishing method**

No information available

**Special protective actions for fire-fighters**

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

**Environmental precautions**

To be careful not discharged to the environment without being properly handled waste water contaminated.

**Methods and materials for contaminant and methods and materials for cleaning up**

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

**Recovery, neutralization**

No information available

**Secondary disaster prevention measures**

Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling

**Technical measures**

Avoid contact with acidic substances Use with local exhaust ventilation.

**Precautions**

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

**Safety handling precautions**

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

### Storage

**Safe storage conditions**

**Storage conditions**

Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed. Store locked up.

**Safe packaging material**

Polyethylene

**Incompatible substances**

Strong acids

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering controls**

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

**Exposure limits**

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Sodium Hydroxide 1310-73-2	Ceiling: 2 mg/m <sup>3</sup>	N/A	Ceiling: 2 mg/m <sup>3</sup>
Mercury(II) iodide	ISHL/ACL: 0.025 mg/m <sup>3</sup>	ISHL/ACL: 0.025 mg/m <sup>3</sup>	TWA: 0.025 mg/m <sup>3</sup> Hg

7774-29-0			TWA: 0.01 mg/m <sup>3</sup> I inhalable particulate matter Skin
Potassium iodide 7681-11-0	N/A	N/A	TWA: 0.01 mg/m <sup>3</sup> I inhalable particulate matter Skin

**Personal protective equipment****Respiratory protection**

Protective mask

**Hand protection**

chemical protective gloves ( JIS T 8116 )

**Eye protection**

protective eyeglasses or chemical safety goggles (JIS T 8147)

**Skin and body protection**

Long-sleeved work clothes

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Form****Color**

slightly yellow - pale yellow

**Turbidity**

clear

**Appearance**

liquid

**Odor**

no data available

**Melting point/freezing point**

no data available

**Boiling point, initial boiling point and boiling range**

no data available

**Flammability**

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

**Flash point**

no data available

**Auto-ignition temperature:**

no data available

**Decomposition temperature:**

no data available

**pH**

Strongly basic

**Viscosity (coefficient of viscosity)**

no data available

**Dynamic viscosity**

no data available

**Solubilities**

water : at the rate of any miscible .

**n-Octanol/water partition coefficient:(log Pow)**

no data available

**Vapour pressure**

no data available

**Specific Gravity / Relative density**

1.097

**Vapour density**

no data available

**Particle characteristics**

no data available

## Section 10: STABILITY AND REACTIVITY

**Stability****Reactivity**

no data available

**Chemical stability**

May be altered by light.

**Hazardous reactions**

None under normal processing

**Conditions to avoid**

Extremes of temperature and direct sunlight

**Incompatible materials**

Strong acids

**Hazardous decomposition products**

Halides, Metal oxides

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Mercury(II) iodide	18 mg/kg ( Rat )	75 mg/kg ( Rat )	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Sodium Hydroxide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Sodium Hydroxide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

### Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

### Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

### Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

### Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

### Carcinogenicity

Chemical Name	Carcinogenicity source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Mercury(II) iodide 7774-29-0		Group 3		

### Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
Sodium Hydroxide	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Sodium Hydroxide	N/A	N/A	LC50 : <i>Ceriodaphnia pulchella</i> 40 mg/L 48 h

**Other data**

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Sodium Hydroxide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Mercury(II) iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Potassium iodide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

<b>Persistence and degradability</b>	No information available
<b>Bioaccumulative potential</b>	No information available
<b>Mobility in soil</b>	No information available
<b>Hazard to the ozone layer</b>	No information available

## Section 13: DISPOSAL CONSIDERATIONS

**Waste from residues**

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

**Contaminated container and contaminated packaging**

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

## Section 14: TRANSPORT INFORMATION

**ADR/RID**

<b>UN number</b>	UN2922
<b>Proper shipping name:</b>	Corrosive liquid, toxic, n.o.s. (Sodium Hydroxide, Mercury(II) iodide mixture)
<b>UN classification</b>	8
<b>Subsidiary hazard class</b>	6.1
<b>Packing group</b>	II
<b>Marine pollutant</b>	Not applicable

**IMDG**

**UN number** UN2922  
**Proper shipping name:** Corrosive liquid, toxic, n.o.s. (Sodium Hydroxide, Mercury(II) iodide mixture)  
**UN classification** 8  
**Subsidiary hazard class** 6.1  
**Packing group** II  
**Marine pollutant (Sea)** Not applicable  
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** No information available

**IATA**

**UN number** UN2922  
**Proper shipping name:** Corrosive liquid, toxic, n.o.s. (Sodium Hydroxide, Mercury(II) iodide mixture)  
**UN classification** 8  
**Subsidiary hazard class** 6.1  
**Packing group** II  
**Environmentally Hazardous Substance** Not applicable

## Section 15: REGULATORY INFORMATION

**Japanese regulations**

**Fire Service Act** Not applicable  
**Poisonous and Deleterious Substances Control Law** Poisonous Substances 2nd. Grade  
**Industrial Safety and Health Act** Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)  
 Notifiable Substances (Law Art.57-2)  
 Group 2 Specified Chemical Substance  
 Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1)  
**Industrial Safety and Health Act (2024-)** 【2024.4.1~】 Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)  
**Regulations for the carriage and storage of dangerous goods in ship** Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)  
**Civil Aeronautics Law** Corrosive Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)  
**Pollutant Release and Transfer Register Law (2023.4.1-)** Class 1  
**Class 1 - No.** 237  
**Water Pollution Control Act** Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)  
 Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)  
**Export Trade Control Order** Appendix 2 Export Approval Item  
**Air Pollution Control Law** Priority Chemical Substances  
**Soil Contamination Control Law** Designated Hazardous Substances

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Sodium Hydroxide 1310-73-2 ( 20.5 )	Applicable	Applicable	-
Mercury(II) iodide 7774-29-0 ( 3.6 )	Applicable	Applicable	Applicable
Potassium iodide 7681-11-0 ( 2.6 )	-	Applicable	-

## Section 16: OTHER INFORMATION

**Key literature references and sources for data etc.**

NITE: National Institute of Technology and Evaluation (JAPAN)  
<http://www.safe.nite.go.jp/japan/db.html>  
IATA dangerous Goods Regulations  
RTECS:Registry of Toxic Effects of Chemical Substances  
Japan Industrial Safety and Health Association GHS Model SDS  
Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.  
Chemical Dictionary, Kyouritsu Publishing Co., Ltd.  
etc

**Record of SDS revisions**

The following contents were revised. Regulatory information.

**Disclaimer**

This SDS is according to JIS Z 7253: 2019. The information provided in this 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, 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.

GHS Classification is according to JIS Z 7252:2019. \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**