

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
Revision date 26-Feb-2024  
Revision Number 3.05

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Nicotine Standard Solution
Product Code	147-03921

**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
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 1
Category 1 respiratory system, nervous system, cardiovascular system, Digestive tract	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 respiratory system	

## Pictograms



## Signal word

Danger

## Hazard statements

- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H302 - Harmful if swallowed
- H311 - Toxic in contact with skin
- H332 - Harmful if inhaled
- H361 - Suspected of damaging fertility or the unborn child
- H370 - Causes damage to the following organs: respiratory system, nervous system, cardiovascular system, Digestive tract
- H372 - Causes damage to the following organs through prolonged or repeated exposure: respiratory system

## 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
- Use only outdoors or in a well-ventilated area
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product

**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
- Call a POISON CENTER or doctor/physician if you feel unwell
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- Call a POISON CENTER or doctor/physician if you feel unwell
- 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	<73.5	18.02	-	N/A	7732-18-5
Sulfuric Acid	15 - 17	98.08	(1)-430	*	7664-93-9
(-)-Nicotine	9.5 - 10.5	162.23	(9)-990	8-(1)-675 -(1)-1010	54-11-5

**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 or cover with dry earth, sand or other non-combustible material and transfer to containers

**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 alkaline substances. Avoid contact with organic substance Avoid contact with reducing agents and combustible materials. Avoid contact with metal. To cut with care and wear protective gloves and protective goggles to ampoule time of the opening (Cutting method to check the label). 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**

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

**Storage****Safe storage conditions****Storage conditions**

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. Store locked up.

**Safe packaging material**

Ampoule

**Incompatible substances**

Organic substance, Combustible materials, Bases, Reducing agent, Metals

## 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
Sulfuric Acid	Ceiling: 1 mg/m <sup>3</sup>	N/A	TWA 0.2mg/m <sup>3</sup>

7664-93-9			
(-)-Nicotine 54-11-5	N/A	N/A	TWA: 0.5 mg/m <sup>3</sup> Skin

**Personal protective equipment**

<b>Respiratory protection</b>	Gas mask for acidic gas ( JIS T 8152 )
<b>Hand protection</b>	chemical protective gloves ( JIS T 8116 )
<b>Eye protection</b>	protective eyeglasses or chemical safety goggles (JIS T 8147)
<b>Skin and body protection</b>	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**

<b>Color</b>	Colorless - pale yellow
<b>Turbidity</b>	clear
<b>Appearance</b>	liquid

**Odor**

no data available

**Melting point/freezing point**

-80 °C

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

246 - 247 °C

**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 acidic

**Viscosity (coefficient of viscosity)**

no data available

**Dynamic viscosity**

no data available

**Solubilities**

water : Very soluble.

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

1.17

**Vapour pressure**

no data available

**Specific Gravity / Relative density**

1.01 (20 °C)

**Vapour density**

no data available

**Particle characteristics**

no data available

## Section 10: STABILITY AND REACTIVITY

**Stability**

<b>Reactivity</b>	no data available
<b>Chemical stability</b>	May be altered by light.

**Hazardous reactions**

Corrodes metals to generate hydrogen gas.

**Conditions to avoid**

Extremes of temperature and direct sunlight

**Incompatible materials**

Organic substance, Combustible materials, Bases, Reducing agent, Metals

**Hazardous decomposition products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides (SO<sub>x</sub>)

## Section 11: TOXICOLOGICAL INFORMATION

**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Sulfuric Acid	2140 mg/kg ( Rat )	N/A	0.375 mg/L ( Rat ) 4 h
(-)-Nicotine	30 - 60 mg/kg ( Human )	50 mg/kg ( Rabbit ) 140 mg/kg ( Rat )	> 0.114 mg/L ( Rat ) 4 h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
Sulfuric Acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
(-)-Nicotine	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
Sulfuric Acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
(-)-Nicotine	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
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**Serious eye damage/ irritation**

Chemical Name	Serious eye damage/irritation source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**Respiratory or skin sensitization**

Chemical Name	Respiratory or Skin sensitization source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**Reproductive cell mutagenicity**

Chemical Name	germ cell mutagenicity source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Sulfuric Acid 7664-93-9	-	Group 1	A2	-
(-)-Nicotine 54-11-5		Group 2A		

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

## Aspiration hazard

Chemical Name	Aspiration Hazard source information
Sulfuric Acid	Based on the NITE GHS classification results.
(-)-Nicotine	Based on the NITE GHS classification results.

## Section 12: ECOLOGICAL INFORMATION

## Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Sulfuric Acid	N/A	LC50:Lepomis macrochirus 16 - 28 mg/L 96 h	LC50:Daphnia magna 29 mg/L 24 h
(-)-Nicotine	N/A	N/A	EC50 : Daphnia magna 3 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
Sulfuric Acid	Based on the NITE GHS classification results	Based on the NITE GHS classification results
(-)-Nicotine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

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

UN number	UN2922
Proper shipping name:	Corrosive liquid, toxic, n.o.s. (Sulfuric acid / nicotine mixture)
UN classification	8
Subsidiary hazard class	6.1
Packing group	II
Marine pollutant	Not applicable

## IMDG

UN number	UN2922
Proper shipping name:	Corrosive liquid, toxic, n.o.s. (Sulfuric acid / nicotine 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. (Sulfuric acid / nicotine 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 3 Specified Chemical Substance, (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Item 6) 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
Industrial Safety and Health Act (2024~)	
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)
Marine Pollution Prevention Law	Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y
Pollutant Release and Transfer Register Law (2023.4.1-)	Not applicable
Export Trade Control Order Narcotics and Psychotropics Control Law	Appendix 2 Export Approval Item
Air Pollution Control Law	Specified 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-)
Sulfuric Acid 7664-93-9 ( 15 - 17 )	Applicable	Applicable	-
(-)-Nicotine 54-11-5 ( 9.5 - 10.5 )	Applicable	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**