

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 04-Apr-2022  
 Revision Number 2.03

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	Silver Stain MS Kit
<b>Product Code</b>	299-58901

<b>Manufacturer</b>	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-5964
<b>Supplier</b>	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-2029
<b>Emergency telephone number</b>	+81-6-6203-3741 / +81-3-3270-8571
<b>Recommended uses and restrictions on use</b>	For research use only

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

Classification of the substance or mixture

<b>Acute toxicity - Inhalation (Dusts/Mists)</b>	Category 4
<b>Serious eye damage/eye irritation</b>	Category 2A
<b>Respiratory sensitization</b>	Category 1
<b>Skin sensitization</b>	Category 1
<b>Carcinogenicity</b>	Category 1A
<b>Reproductive Toxicity</b>	Category 2
<b>Specific target organ toxicity (single exposure)</b>	Category 1, Category 3
<b>Category 1</b> nervous system, respiratory system, blood system	
<b>Category 3</b> Respiratory irritation	
<b>Specific target organ toxicity (repeated exposure)</b>	Category 1
<b>Category 1</b> respiratory system, central nervous system, kidneys, cardiovascular system	
<b>Acute aquatic toxicity</b>	Category 1
<b>Chronic aquatic toxicity</b>	Category 1

## Pictograms



Signal word

Danger

## Hazard statements

- H319 - Causes serious eye irritation
- H332 - Harmful if inhaled
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H350 - May cause cancer
- H361 - Suspected of damaging fertility or the unborn child
- H335 - May cause respiratory irritation

H317 - May cause an allergic skin reaction  
 H400 - Very toxic to aquatic life  
 H410 - Very toxic to aquatic life with long lasting effects  
 H370 - Causes damage to the following organs: nervous system, respiratory system, blood system  
 H372 - Causes damage to the following organs through prolonged or repeated exposure: respiratory system, central nervous system, kidneys, cardiovascular 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
- Wash face, hands and any exposed skin thoroughly after handling
- In case of inadequate ventilation wear respiratory protection
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product
- Avoid release to the environment

**Precautionary statements-(Response)**

- IF exposed: Call a POISON CENTER or doctor/physician
- 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
- IF ON SKIN: Wash with plenty of soap and water
- If skin irritation or rash occurs: Get medical advice/attention
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
- Collect spillage

**Precautionary statements-(Storage)**

- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

**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** Kit (Set of mixtures)

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Enhancing Stock Solution	-	N/A	N/A	N/A	N/A-29-5891
Staining Stock Solution	-	N/A	N/A	N/A	N/A-29-5892
Developing Stock Solution	-	N/A	N/A	N/A	N/A-29-5893
Developing Powder Stopper	-	N/A	N/A	N/A	N/A-29-5894
De-staining Solution A	-	N/A	N/A	N/A	N/A-29-5896
De-staining Solution B	-	N/A	N/A	N/A	N/A-29-5897

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

**Impurities and/or Additives:**

Hazardous Component

Not applicable

Silver Nitrate >1%, Formaldehyde <1%, Sodium Carbonate, Potassium Hexacyanoferrate(III) >1%, Sodium Thiosulfate, Methanol <0.1%

**Substances Remarks:**

The composition considered to be hazardous are listed in the above. The remaining ingredients are not hazardous substances, or exist at below reportable level.

**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**

Water spray (fog), Carbon dioxide (CO<sub>2</sub>), Foam, Extinguishing powder, Sand

**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. Sweep up and gather scattered particles, and collect it in an empty airtight container.

**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 strong oxidizing agents. 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****Safe packaging material****Incompatible substances**

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

Polyethylene

Strong oxidizing agents

## 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
Potassium hexacyanoferrate(III) 13746-66-2	N/A	N/A	TWA: 1 mg/m <sup>3</sup> Fe
Formaldehyde 50-00-0	Ceiling: 0.2 ppm Ceiling: 0.24 mg/m <sup>3</sup> TWA: 0.1 ppm OEL TWA: 0.12 mg/m <sup>3</sup> OEL ISHL/ACL: 0.1 ppm	ISHL/ACL: 0.1 ppm	STEL: 0.3 ppm TWA: 0.1 ppm
Silver nitrate 7761-88-8	0.01mg/m <sup>3</sup> (Ag)	N/A	TWA: 0.01 mg/m <sup>3</sup> Ag

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

Protective mask

**Hand protection**

Protection gloves

**Eye protection**

protective eyeglasses or chemical safety goggles

**Skin and body protection**

Long-sleeved work clothes

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Form****Appearance**

liquid or solid

**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**

no data available

**Viscosity (coefficient of viscosity)**

no data available

**Dynamic viscosity**

no data available

**Solubilities**

water : soluble .

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

no data available

**Vapour pressure**

no data available

**Specific Gravity / Relative density**

no data available

**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 oxidizing agents

### Hazardous decomposition products

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

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Potassium hexacyanoferrate(III)	2970 mg/kg ( Mouse )	N/A	N/A
Sodium Carbonate	2,800 mg/kg ( Rat )	>2,000 mg/kg (Rabbit)	1.2 mg/L (Rat) 4h
Formaldehyde	600 - 800 mg/kg(Rat)	270 mg/kg(Rabbit)	0.578 mg/L ( Rat ) 4 h
Silver nitrate	1173 mg/kg(Rat)	N/A	N/A
Sodium Thiosulfate	> 5000 mg/kg ( Rat )	N/A	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Sodium Carbonate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Silver nitrate	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 Carbonate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS Classification results.
Formaldehyde	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Silver nitrate	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 Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

### Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

### Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

### Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
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Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

**Carcinogenicity**

Chemical Name	Carcinogenicity source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Formaldehyde 50-00-0	Known	Group 1	A1	Group 2A
Silver nitrate 7761-88-8	-	Group 2A	-	-

**Reproductive toxicity**

Chemical Name	Reproductive toxicity source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

**STOT-single exposure**

Chemical Name	STOT -single exposure- source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

**STOT-repeated exposure**

Chemical Name	STOT -repeated exposure- source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

**Aspiration hazard**

Chemical Name	Aspiration Hazard source information
Sodium Carbonate	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.
Silver nitrate	Based on the NITE GHS classification results.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Sodium Carbonate	EC50 : <i>Nitzschia</i> 242 mg/L 120 h	LC50 : <i>Lepomis macrochirus</i> 300 mg/L 96 h	EC50 : <i>Daphnia magna</i> 250 mg/L 48 h
Formaldehyde	N/A	LC50: <i>Pimephales promelas</i> 22.6 - 25.7 mg/L 96 h	LC50 : <i>Cypridopsis sp.</i> 0.00094 mg/L 24 h
Silver nitrate	N/A	LOEC : <i>Oncorhynchus mykiss</i> 0.00016 mg/L 60 d	EC50 : <i>Daphnia magna</i> 0.0014 mg/L 48 h
Sodium Thiosulfate	N/A	LC50: <i>Gambusia affinis</i> 24000 mg/L 96 h	N/A

**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 Carbonate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Formaldehyde	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Silver nitrate	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>	UN3082
<b>Proper shipping name:</b>	Environmentally hazardous substance, liquid, n.o.s. (Silver nitrate solution)
<b>UN classification</b>	9
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	III
<b>Marine pollutant</b>	Yes

#### IMDG

<b>UN number</b>	UN3082
<b>Proper shipping name:</b>	Environmentally hazardous substance, liquid, n.o.s. (Silver nitrate solution)
<b>UN classification</b>	9
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	III
<b>Marine pollutant (Sea)</b>	Yes
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	No information available

#### IATA

<b>UN number</b>	UN3082
<b>Proper shipping name:</b>	Environmentally hazardous substance, liquid, n.o.s. (Silver nitrate solution)
<b>UN classification</b>	9
<b>Subsidiary hazard class</b>	
<b>Packing group</b>	III
<b>Environmentally Hazardous Substance</b>	Yes

### Section 15: REGULATORY INFORMATION

#### International Inventories

<b>EINECS/ELINCS</b>	-
<b>TSCA</b>	-

#### Japanese regulations

<b>Fire Service Act</b>	Not applicable
<b>Poisonous and Deleterious Substances Control Law</b>	Not applicable
<b>Industrial Safety and Health Act</b>	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.137,352,548
<b>Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc</b>	Priority Assessment Chemical Substances (Law Article 2, Para.5)
<b>Regulations for the carriage and storage of dangerous</b>	Noxious Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

<b>goods in ship</b>	
<b>Civil Aeronautics Law</b>	Misellaneous Dangerous Substances and Articles (Ordinance Art.194, MITL Nortification for Air Transportation of Explosives etc., Attached Table 1)
<b>Marine Pollution Prevention Law</b>	Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y
<b>Pollutant Release and Transfer Register Law</b>	Specified Class 1 No. Class 1
<b>(~2023.3.31)</b>	
<b>Specified Class 1-No.</b>	411
<b>Class 1 - No.</b>	82
<b>Pollutant Release and Transfer Register Law</b>	Specified Class 1 No.
<b>(2023/4/1~)</b>	Class 1
<b>Specified Class 1-No.</b>	411
<b>Class 1 - No.</b>	82
<b>Water Pollution Control Act</b>	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)
<b>Export Trade Control Order</b>	Not applicable
<b>Air Pollution Control Law</b>	Specified Substances, Hazardous Air Pollutants, Priority Chemical Substances
<b>Soil Contamination Control Law</b>	Designated Hazardous Substances

**Pollution Release and Transfer Registry (~2023.3.31)**

Class	Chemical Name in Regulation	(Metal Name)	Ordinance Number	Content Rate
Specified Class 1	Formaldehyde		411	>0.1
Class 1	Silver and its water-soluble compounds		82	>1

**Industrial Safety and Health Law (~2024.3.31)**

Law Name	Chemical Name in Regulation	Ordinance Number	Weight %
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9, and Law Art.56-1)	Silver and its soluble compounds	137	>1
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9, and Law Art.56-1)	Water-soluble iron salts	352	>1
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9, and Law Art.56-1)	Formaldehyde	548	>0.1

**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

**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 Z7252(2019). \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**