SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 01-Mar-2024
Revision Number 2.05

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Silver Stain MS Kit
Product Code	299-58901

Supplier
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

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 - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Category 3 Respiratory irritation, Narcotic effects	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 respiratory system	
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

Pictograms

Signal word Danger

Hazard statements

H315 - Causes skin irritation
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350 - May cause cancer
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H317 - May cause an allergic skin reaction
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
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
- 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 or concerned: Get medical advice/attention
- 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: Wash with plenty of soap and water
- Take off contaminated clothing and wash 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 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	-	N/A	N/A	N/A	N/A-29-5894
Stopper	-	N/A	N/A	N/A	N/A-29-5895
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.

Substances Remarks: This Product includes the following componets. Silver nitrate <1.0 % (as Ag), Formaldehyde <1.0 %, Potassium hexacyanoferrate(III) >1.0 %, Sodium Carbonate

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 contaminent 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.

Recoverly, 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	Keep container protect from light tightly closed. Store in a cool (2-10 °C) place.
Safe packaging material	Polyethylene

Incompatible substances 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/m³ Fe
Formaldehyde 50-00-0	Ceiling: 0.2 ppm Ceiling: 0.24 mg/m³ TWA: 0.1 ppm OEL TWA: 0.12 mg/m³ OEL ISHL/ACL: 0.1 ppm	ISHL/ACL: 0.1 ppm	STEL: 0.3 ppm TWA: 0.1 ppm
Silver nitrate 7761-88-8	TWA: 0.01 mg/m³ OEL	N/A	TWA: 0.01 mg/m³ Ag

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

Appearance Kit (Set of mixtures)
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 No data available
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 monooxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), 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) 4 h
Formaldehyde	600 - 800 mg/kg (Rat)	270 mg/kg (Rabbit)	0.578 mg/L (Rat) 4 h
Silver nitrate	1170 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 750 µg/m³ (Rat) 4 h

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 mutagencity 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.

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 : Nitzschia 242 mg/L 120 h*	*LC50 : Lepomis macrochirus 300 mg/L 96 h*	*EC50 : Daphnia magna 250 mg/L 48 h*
Formaldehyde	*N/A*	*LC50:Pimephales promelas 22.6 - 25.7 mg/L 96 h*	*LC50 : Cypridopsis sp. 0.00094 mg/L 24 h*
Silver nitrate	*N/A*	*LC50: 0.00512 - 0.00787mg/L (96h, Poecilia reticulata) LC50: 0.009 - 0.02mg/L (96h, Lepomis macrochirus) LC50: 0.0242 - 0.0484mg/L (96h, Lepomis macrochirus) LC50: 0.05 - 0.07mg/L (96h, Lepomis macrochirus) LC50: 0.001339 - 0.001637mg/L (96h, Oncorhynchus mykiss) LC50: =0.0075mg/L (96h, Oncorhynchus mykiss) LC50: 0.00839 - 0.1802mg/L*	*EC50 : Daphnia magna 0.0014 mg/L 48 h*

		(96h, Oncorhynchus mykiss) LC50: 0.00452 - 0.00638mg/L (96h, Pimephales promelas) LC50: 0.00181 - 0.00214mg/L (96h, Pimephales promelas) LC50: 0.0064 - 0.0106mg/L (96h, Pimephales promelas) LC50: =0.009mg/L (96h, Pimephales promelas) LC50: =0.0027mg/L (96h, Cyprinus carpio)	

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.

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 UN3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Silver Nitrate Solution)
UN classfication 9
Subsidiary hazard class
Packing group III
Marine pollutant Yes

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

IATA
UN number UN3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Silver Nitrate Solution)
UN classfication 9
Subsidiary hazard class
Packing group III

Environmentally Hazardous Substance Yes

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act Not applicable

Poisonous and Deleterious Substances Control Law Not applicable

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)

Industrial Safety and Health Act (2024~) 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc Priority Assessment Chemical Substances (Law Article 2, Para.5)

Regulations for the carriage and storage of dangerous goods in ship Noxious Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

Civil Aeronautics Law Misellaneous Dangerous Substances and Articles (Ordinance Art.194, MITL Nortification 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-) Specified Class 1 No.

Specified Class 1-No. 411

Water Pollution Control Act Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinace Designating Wastewater Standards Art.1)
Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)

Export Trade Control Order Not applicable

Air Pollution Control Law Specified Substances, Hazardous Air Pollutants, Priority Chemical Substances

Soil Contamination Control Law Designated Hazardous Substances

Pollution Release and Transfer Registry (~2023.3.31)

Class	Chemical Name in Regulation	(Metal Name)	Control number	Content Rate
Specified Class 1	Formaldehyde		411	<1.0 %

Industrial Safety and Health Law

Law Name	Chemical Name in Regulation	Weight %	
Notifiable Substances (Law Art.57-2)	Silver and its soluble compounds	<1.0 % (as Ag)	Existing Law
Notifiable Substances (Law Art.57-2)	Water-soluble iron salts	>1.0 %	Existing Law
Notifiable Substances (Law Art.57-2)	Formaldehyde	<1.0 %	Existing Law

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 Oraganic 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