

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision Date 21-Jul-2020
 Version 4.03

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	Decalcifying Solution A
Product code	047-21911

Manufacturer	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
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 and restrictions on use	For research purposes

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Respiratory sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 2
Category 2 central nervous system, respiratory system, blood system, kidneys	
Specific target organ toxicity (repeated exposure)	Category 2
Category 2 teeth, respiratory system	
Short-term (acute) hazardous to the aquatic environment	Category 1
Long-term (chronic) hazardous to the aquatic environment	Category 2

Pictograms



Signal word

Danger

Hazard statements

- H290 - May be corrosive to metals
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H400 - Very toxic to aquatic life
- H411 - Toxic to aquatic life with long lasting effects
- H371 - May cause damage to the following organs: central nervous system, respiratory system, blood system, kidneys
- H373 - May cause damage to the following organs through prolonged or repeated exposure: teeth, respiratory system

Precautionary statements-(Prevention)

- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/protective clothing/eye protection/face protection
- In case of inadequate ventilation wear respiratory protection
- Do not eat, drink or smoke when using this product
- Avoid release to the environment
- Keep only in original container

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 INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
- Collect spillage
- Absorb spillage to prevent material damage

Precautionary statements-(Storage)

- Store locked up.
- Store in corrosive resistant/container with a resistant inner liner

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	<83.4	18.02	N/A	N/A	7732-18-5
Aluminium(III) Chloride Hexahydrate	7.0w/v	241.43	(1)-12	公表	7784-13-6
Formic acid	6.0w/v	46.03	(2)-670	公表	64-18-6
Hydrochloric Acid	3.6w/v	36.46	(1)-215	公表	7647-01-0

Impurities and/or Additives : Not applicable

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 alkaline 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

Store away from sunlight in well-ventilated place at room temperature (preferably cool).
Keep container tightly closed.

Safe packaging material

Polyethylene

Incompatible substances

alkaline substances

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
Formic acid 64-18-6	TWA: 5 ppm OEL TWA: 9.4 mg/m ³ OEL	N/A	STEL: 10 ppm TWA: 5 ppm
Hydrochloric Acid 7647-01-0	5ppm(7.5mg/m ³)	N/A	Ceiling: 2 ppm

Personal protective equipment

Respiratory protection	Gas mask for acidic gas
Hand protection	Impermeable protective 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	
Color	colorless
Turbidity	clear
Appearance	liquid
Odor	Pungent odor
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 acidic
Viscosity (coefficient of viscosity)	No data available
Dynamic viscosity	No data available
Solubilities	water : miscible .
n-Octanol/water partition coefficient:(log Pow)	No data available
Vapour pressure	No data available
Specific Gravity / Relative density	1.058 - 1.070
Vapour density	No data available
Particle characteristics	No data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	No data available
Chemical stability	Stable under recommended storage conditions.
Hazardous reactions	
None under normal processing	
Conditions to avoid	
Extremes of temperature and direct sunlight	
Incompatible materials	
alkaline substances	
Hazardous decomposition products	
Carbon monoxide (CO), Carbon dioxide (CO ₂), Halides, Metal oxides	

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Formic acid	700 mg/kg (Rat)	N/A	3929 ppm (Rat) 4h
Hydrochloric Acid	238 mg/kg (rat)	>5010 mg/kg (rabbit)	1411 ppm(rat) 4h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS	Based on the NITE GHS	Based on the NITE GHS

	classification results.	classification results.	classification results.
Formic acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Hydrochloric Acid	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
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Hydrochloric Acid	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
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Hydrochloric Acid 7647-01-0	N/A	Group 1 Group 3	N/A	N/A

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.

Formic acid	Based on the NITE GHS classification results.
Hydrochloric Acid	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Formic acid	<i>EC50 :Scenedesmus</i> 25 mg/L 96h	<i>LC50:Danio rerio</i> 1560 mg/L 96h	<i>EC50:Daphnia magna</i> 540 mg/L 48 h
Hydrochloric Acid	N/A	N/A	<i>EC50:Daphnia magna</i> 0.492 mg/L 48h

Other data

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Aluminium(III) Chloride Hexahydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Formic acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Hydrochloric Acid	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
Mobility	

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	UN1760
Proper shipping name:	Corrosive liquid, n.o.s. (Hydrochloric Acid, Formic Acid, Aluminium Chloride Solution)
UN classification	8
Subsidiary hazard class	
Packing group	III
Marine pollutant	Yes

IMDG

UN number	UN1760
Proper shipping name:	Corrosive liquid, n.o.s. (Hydrochloric Acid, Formic Acid, Aluminium Chloride Solution)
UN classification	8
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	UN1760
Proper shipping name:	Corrosive liquid, n.o.s. (Hydrochloric Acid, Formic Acid, Aluminium Chloride Solution)
UN classification	8

Subsidiary hazard class
 Packing group III
 Environmentally Hazardous Substance Yes

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS -
 TSCA -

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, Para.1, Enforcement Order Art.18)
 Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.37,98,132
 Priority Assessment Chemical Substances (Law Article 2, Para.5)
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc
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
 Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Z
Pollutant Release and Transfer Register Law Not applicable
Water Pollution Control Act Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)
Export Trade Control Order Not applicable
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
Aluminium(III) Chloride Hexahydrate 7784-13-6 (7.0w/v)	-	Applicable	-
Formic acid 64-18-6 (6.0w/v)	-	Applicable	-
Hydrochloric Acid 7647-01-0 (3.6w/v)	-	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

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