

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 09-Feb-2023
Revision Number 5.02

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Multication Standard Solution III
Product Code	137-14611

Manufacturer FUJIFILM Wako Pure Chemical Corporation
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Recommended uses and restrictions on use For research use only

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Pictograms

Signal word None

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Precautionary statements-(Prevention)

- Not applicable

Precautionary statements-(Response)

- Not applicable

Precautionary statements-(Storage)

- Not applicable

Precautionary statements-(Disposal)

- Not applicable

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	=<100	18.02	N/A	N/A	7732-18-5
Nitric Acid	0.126	63.01	(1)-394	*	7697-37-2
Calcium nitrate tetrahydrate	0.013	236.15	1-188	公表	13477-34-4
Potassium nitrate	0.013	101.10	(1)-449	*	7757-79-1

Ammonium nitrate	0.012	80.04	(1)-395	*	6484-52-2
Magnesium nitrate hexahydrate	0.011	256.41	(1)-464	*	13446-18-9
Sodium nitrate	0.007	84.99	(1)-484	*	7631-99-4
Lithium nitrate	0.005	68.95	(1)-765	公表	7790-69-4

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

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**

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.

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
Nitric Acid 7697-37-2	2ppm, 5.2mg/m ³	N/A	STEL: 4 ppm TWA: 2 ppm

Personal protective equipment**Respiratory protection**

Protective mask

Hand protection

Protection gloves

Eye protection

protective eyeglasses or chemical safety goggles

Skin and body protection

protective boots, 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

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 : freely soluble .

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

no data available

Vapour pressure

no data available

Specific Gravity / Relative density
Vapour density
Particle characteristics

no data available
no data available
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

Nitrogen oxides (NOx), Metal oxides

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Nitric Acid	N/A	N/A	334 ppm (Rat) 0.5 h
Calcium nitrate tetrahydrate	3900 mg/kg (Rat)	N/A	N/A
Potassium nitrate	3015 mg/kg (Rat)	N/A	N/A
Ammonium nitrate	2000 - 2950 mg/kg (Rat)	>5000 mg/kg (Rat)	> 88.8 mg/L (Rat) 4 h
Magnesium nitrate hexahydrate	5440 mg/kg (Rat)	N/A	N/A
Sodium nitrate	1267 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
Nitric Acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Lithium 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
Nitric Acid	Based on the NITE GHS Classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS Classification results.
Potassium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Lithium 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
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Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Nitric Acid 7697-37-2	-	Group 1 Group 2A	-	-
Calcium nitrate tetrahydrate 13477-34-4		Group 2A		
Potassium nitrate 7757-79-1		Group 2A		
Ammonium nitrate 6484-52-2	-	Group 2A	-	-
Magnesium nitrate hexahydrate 13446-18-9		Group 2A		
Sodium nitrate 7631-99-4		Group 2A		
Lithium nitrate 7790-69-4		Group 2A		

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.

Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Nitric Acid	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Nitric Acid	N/A	LC50 : <i>Gambusia affinis</i> 72 mg/L 96 h	N/A
Ammonium nitrate	N/A	LC50 : <i>Oncorhynchus mykiss</i> 542 - 1756 mg/L 96 h	EC50 : <i>Daphnia magna</i> 555 mg/L 24 h
Sodium nitrate	N/A	LC50: <i>Oncorhynchus mykiss</i> 994.4 - 1107 mg/L 96 h LC50: <i>Lepomis macrochirus</i> 2000 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
Nitric Acid	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Potassium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Ammonium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Magnesium nitrate hexahydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Sodium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Lithium nitrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability
Bioaccumulative potential
Mobility in soil

No information available
 No information available
 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	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant	Not applicable
IMDG	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	Not regulated
UN number	-
Proper shipping name:	
UN classification	
Subsidiary hazard class	
Packing group	
Environmentally Hazardous Substance	Not applicable

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	Not applicable
Regulations for the carriage and storage of dangerous goods in ship	Not applicable
Civil Aeronautics Law	Not applicable
Pollutant Release and Transfer Register Law	Not applicable
(~2023.3.31)	
Pollutant Release and Transfer Register Law	Not applicable
(2023/4/1~)	
Export Trade Control Order	Not 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