

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 28-Mar-2023
 Revision Number 6.04

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	Hydrazine Monohydrate
Product Code	081-00893,085-00896,085-00891

Manufacturer FUJIFILM Wako Pure Chemical Corporation
 1-2 Doshomachi 3-Chome
 Chuo-ku, Osaka 540-8605, Japan
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Supplier FUJIFILM Wako Pure Chemical Corporation
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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

Flammable liquids	Category 4
Acute toxicity - Oral	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1
Category 1 central nervous system, liver, kidneys	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 liver, nervous system, kidneys	
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

Pictograms



Signal word

Danger

Hazard statements

- H227 - Combustible liquid
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H301 - Toxic if swallowed
- H341 - Suspected of causing genetic defects
- H350 - May cause cancer

H317 - May cause an allergic skin reaction

H410 - Very toxic to aquatic life with long lasting effects

H400 - Very toxic to aquatic life

H370 - Causes damage to the following organs: central nervous system, liver, kidneys

H372 - Causes damage to the following organs through prolonged or repeated exposure: liver, nervous system, kidneys

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
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- 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
- Avoid release to the environment
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

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
- 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 SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Rinse mouth
- Do NOT induce vomiting
- In case of fire: Use CO₂, dry chemical, or foam for extinction
- Collect spillage

Precautionary statements-(Storage)

- Store locked up
- Store in a well-ventilated place. Keep cool

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 Substance

Formula H₂NNH₂·H₂O

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Hydrazine Monohydrate	98.0	50.06	1-374	*	7803-57-8

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

Carbon dioxide (CO₂), 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.

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

Highly flammable. Avoid contact with high temperature objects, spark, and 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

Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Storage

Safe storage conditions

Storage conditions

Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed. Store locked up.

Safe packaging material

Glass

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
Hydrazine Monohydrate 7803-57-8	TWA: 0.1 ppm OEL TWA: 0.21 mg/m ³ OEL Skin	N/A	Hydrazine TWA 0.1 ppm (skin)

Personal protective equipment

Respiratory protection	Protective mask
Hand protection	chemical protective gloves (JIS T 8116)
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

characteristic odor

Melting point/freezing point

-51.7 °C

Boiling point, initial boiling point and boiling range

120 °C

Flammability

Combustible liquid

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

96 °C / 205 °F

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 , Ethanol and acetone : Very soluble .

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

no data available

Vapour pressure

no data available

Specific Gravity / Relative density

1.03 g/mL

Vapour density

1.1

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, Heat, flames and sparks, static electricity, spark

Incompatible materials

Strong oxidizing agents

Hazardous decomposition productsCarbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)**Section 11: TOXICOLOGICAL INFORMATION****Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrazine Monohydrate	169 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
Hydrazine Monohydrate	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
Hydrazine Monohydrate	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
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Hydrazine Monohydrate 7803-57-8				Group 2B

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Hydrazine Monohydrate	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION**Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Hydrazine Monohydrate	<i>ErC50</i> : <i>Selenastrum</i> 0.19 mg/L 72 h	N/A	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
Hydrazine Monohydrate	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability	Not Readily Biodegradable
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	UN2030
Proper shipping name:	Hydrazine aqueous solution
UN classification	8
Subsidiary hazard class	6.1
Packing group	II
Marine pollutant	Yes

IMDG

UN number	UN2030
Proper shipping name:	Hydrazine, aqueous solution
UN classification	8
Subsidiary hazard class	6.1
Packing group	II
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA

	Cargo Aircraft only
UN number	UN2030
Proper shipping name:	Hydrazine, aqueous solution
UN classification	8
Subsidiary hazard class	6.1
Packing group	II
Environmentally Hazardous Substance	Yes

Section 15: REGULATORY INFORMATION**International Inventories**

EINECS/ELINCS	-
TSCA	-

Japanese regulations

Fire Service Act	Category IV, Class III petroleum, dangerous grade 3 water-soluble
Poisonous and Deleterious Substances Control Law	Deleterious Substances 3rd. Grade
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57,

<p>Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc</p> <p>Regulations for the carriage and storage of dangerous goods in ship</p> <p>Civil Aeronautics Law</p> <p>Pollutant Release and Transfer Register Law (2023.4.1-)</p> <p>Class 1 - No.</p> <p>Water Pollution Control Act</p> <p>Export Trade Control Order</p>	<p>Para.1, Enforcement Order Art.18)</p> <p>Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.460</p> <p>Substances with Health Hazards Prevention Guideline(Carcinogenicity Substance)</p> <p>Substances designated by the Minister of Health, Labor and Welfare as carcinogenic(Ordinance on Industrial Safety and Health Art.577, Para.2)</p> <p>Priority Assessment Chemical Substances (Law Article 2, Para.5)</p> <p>Corrosive Substances (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)</p> <p>Corrosive Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)</p> <p>Class 1</p> <p>333</p> <p>Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)</p> <p>Not applicable</p>
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Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2) (~2024.3.31)	Pollutant Release and Transfer Register Law (2023.4.1-)
Hydrazine Monohydrate 7803-57-8 (98.0)	Applicable	Applicable	Applicable

Section 16: OTHER INFORMATION

<p>Key literature references and sources for data etc.</p>	<p>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</p>
<p>Record of SDS revisions</p>	<p>The following contents were revised. Product and company identification. Hazards identification. Fire fighting measures. Exposure controls/personal protection. Regulatory information.</p>
<p>Disclaimer</p> <p>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.</p> <p>GHS Classification is according to JIS Z7252(2019). *JIS: Japanese Industrial Standards</p>	

End of Safety Data Sheet