

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 26-Feb-2024  
 Revision Number 2.06

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

|                     |                       |
|---------------------|-----------------------|
| <b>Product Name</b> | N,N-Dimethylhydrazine |
| <b>Product Code</b> | 047-19083,041-19086   |

**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

Self-reactive substances and mixtures Flammable liquids

Acute toxicity - Oral

Acute toxicity - Dermal

Acute toxicity - Inhalation (Vapors)

Skin corrosion/irritation

Serious eye damage/eye irritation

Skin sensitization

Germ cell mutagenicity

Carcinogenicity

Specific target organ toxicity (single exposure)

Category 1 nervous system, respiratory system

Specific target organ toxicity (repeated exposure)

Category 1 liver, blood system, nervous system, respiratory system

Acute aquatic toxicity

Chronic aquatic toxicity

Type G Category 2

Category 3

Category 4

Category 2

Category 2

Category 2A

Category 1

Category 2

Category 2

Category 1

Category 1

Category 2

Category 2

## Pictograms



Signal word

Danger

## Hazard statements

H242 - Heating may cause a fire

H225 - Highly flammable liquid and vapor

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H301 - Toxic if swallowed

H312 - Harmful in contact with skin

H330 - Fatal if inhaled

H341 - Suspected of causing genetic defects

H351 - Suspected of causing cancer  
 H317 - May cause an allergic skin reaction  
 H411 - Toxic to aquatic life with long lasting effects  
 H401 - Toxic to aquatic life  
 H370 - Causes damage to the following organs: nervous system, respiratory system  
 H372 - Causes damage to the following organs through prolonged or repeated exposure: liver, blood system, nervous system, 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
- 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
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ ventilating / lighting / equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge

**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
- Call a POISON CENTER or doctor/physician if you feel unwell
- If skin irritation or rash occurs: Get medical advice/attention
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Rinse mouth
- In case of fire: Use suitable extinguishing media 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** (CH<sub>3</sub>)<sub>2</sub>NNH<sub>2</sub>

| Chemical Name         | Weight-% | Molecular weight | ENCS    | ISHL No. | CAS RN  |
|-----------------------|----------|------------------|---------|----------|---------|
| 1,1-Dimethylhydrazine | 98.0     | 60.10            | (2)-200 | *        | 57-14-7 |

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

### 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), Foam, 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**

If impossible to extinguish, protect surroundings and allow fire to burn itself out

**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**

Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Do not give shock. 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 tightly closed. Store in a cool (2-10 °C) place. Packed with an inert gas. 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                 |
|----------------------------------|--------------------|--------------------|-----------------------|
| 1,1-Dimethylhydrazine<br>57-14-7 | ISHL/ACL: 0.01 ppm | ISHL/ACL: 0.01 ppm | TWA: 0.01 ppm<br>Skin |

### Personal protective equipment

#### Respiratory protection

gas mask for organic gas ( JIS T 8152 )

#### 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

#### Color

Colorless - nearly colorless

#### Turbidity

clear

#### Appearance

liquid

### Odor

characteristic odor

### Melting point/freezing point

-58 °C

### Boiling point, initial boiling point and boiling range

63 °C

### Flammability

Highly flammable liquid and vapor

### Evaporation rate:

no data available

### Flammability (solid, gas):

no data available

### Upper/lower flammability or explosive limits

#### Upper:

95vol%

#### Lower:

2vol%

### Flash point

-15 °C

### 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 : Very soluble.

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

-1.9

### Vapour pressure

no data available

### Specific Gravity / Relative density

0.787 -0.794 g/mL (20 °C)

### Vapour density

2.1

### Particle characteristics

no data available

## Section 10: STABILITY AND REACTIVITY

### Stability

**Reactivity** no data available  
**Chemical stability** May be altered by light.

### Hazardous reactions

Decomposes on heating or on burning, and produces toxic gases. Risk of explosion by shock, friction, fire or other sources of ignition

### Conditions to avoid

Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark, Shock

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

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

## Section 11: TOXICOLOGICAL INFORMATION

### Acute toxicity

| Chemical Name         | Oral LD50         | Dermal LD50           | Inhalation LC50        |
|-----------------------|-------------------|-----------------------|------------------------|
| 1,1-Dimethylhydrazine | 122 mg/kg ( Rat ) | 1060 mg/kg ( Rabbit ) | 0.620 mg/L ( Rat ) 4 h |

| Chemical Name         | Acute toxicity -oral- source information      | Acute toxicity -dermal- source information    | Acute toxicity -inhalation gas- source information |
|-----------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------------|
| 1,1-Dimethylhydrazine | 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 |
|-----------------------|------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| 1,1-Dimethylhydrazine | 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  |
|-----------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results. |

### Serious eye damage/ irritation

| Chemical Name         | Serious eye damage/irritation source information |
|-----------------------|--------------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results.    |

### Respiratory or skin sensitization

| Chemical Name         | Respiratory or Skin sensitization source information |
|-----------------------|------------------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results.        |

### Reproductive cell mutagenicity

| Chemical Name         | germ cell mutagenicity source information     |
|-----------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results. |

### Carcinogenicity

| Chemical Name         | Carcinogenicity source information            |
|-----------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results. |

| Chemical Name                    | NTP                    | IARC     | ACGIH | JSOH (Japan) |
|----------------------------------|------------------------|----------|-------|--------------|
| 1,1-Dimethylhydrazine<br>57-14-7 | Reasonably Anticipated | Group 2B | A3    | Group 2B     |

### Reproductive toxicity

| Chemical Name         | Reproductive toxicity source information      |
|-----------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results. |

### STOT-single exposure

| Chemical Name         | STOT -single exposure- source information     |
|-----------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine | Based on the NITE GHS classification results. |

### STOT-repeated exposure

| Chemical Name | STOT -repeated exposure- source information |
|---------------|---------------------------------------------|
|---------------|---------------------------------------------|

|                          |                                               |
|--------------------------|-----------------------------------------------|
| 1,1-Dimethylhydrazine    | Based on the NITE GHS classification results. |
| <b>Aspiration hazard</b> |                                               |
| <b>Chemical Name</b>     | <b>Aspiration Hazard source information</b>   |
| 1,1-Dimethylhydrazine    | Based on the NITE GHS classification results. |

## Section 12: ECOLOGICAL INFORMATION

### Ecotoxicity

| Chemical Name         | Algae/aquatic plants | Fish                                                                                                                     | Crustacea                                    |
|-----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| 1,1-Dimethylhydrazine | N/A                  | LC50 : <i>Poecilia reticulata</i><br>6.08 - 16.7 mg/L 96 h<br>LC50 : <i>Pimephales promelas</i><br>7.16 - 8.62 mg/L 96 h | EC50 : <i>Daphnia magna</i><br>1.3 mg/L 48 h |

### Other data

| Chemical Name         | Short-term (acute) hazardous to the aquatic environment source information | Long-term (chronic) hazardous to the aquatic environment source information |
|-----------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1,1-Dimethylhydrazine | 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               | UN1163                           |
| Proper shipping name:   | DIMETHYLHYDRAZINE, UNSYMMETRICAL |
| UN classification       | 6.1                              |
| Subsidiary hazard class | 3, 8                             |
| Packing group           | I                                |
| Marine pollutant        | Yes                              |

### IMDG

|                                                                          |                                  |
|--------------------------------------------------------------------------|----------------------------------|
| UN number                                                                | UN1163                           |
| Proper shipping name:                                                    | DIMETHYLHYDRAZINE, UNSYMMETRICAL |
| UN classification                                                        | 6.1                              |
| Subsidiary hazard class                                                  | 3, 8, P                          |
| Packing group                                                            | I                                |
| 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               | UN1163                           |
| Proper shipping name:   | DIMETHYLHYDRAZINE, UNSYMMETRICAL |
| UN classification       | 6.1                              |
| Subsidiary hazard class | 3, 8                             |

Packing group I  
 Environmentally Hazardous Substance Yes

## Section 15: REGULATORY INFORMATION

### Japanese regulations

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fire Service Act</b>                                                    | Category V, hydrazine derivatives, dangerous grade 2                                                                                                                                                                                                                                                                                                                                      |
| <b>Poisonous and Deleterious Substances Control Law</b>                    | Poisonous Substances 2nd. Grade                                                                                                                                                                                                                                                                                                                                                           |
| <b>Industrial Safety and Health Act</b>                                    | Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57)<br>Notifiable Substances (Law Art.57-2)<br>Group 2 Specified Chemical Substance<br>Mutagens - Existing Chemicals<br>Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)<br>Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1) |
| <b>Industrial Safety and Health Act (2024~)</b>                            | 【2024.4.1~】Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)                                                                                                                                                                                                                                                                                             |
| <b>Regulations for the carriage and storage of dangerous goods in ship</b> | Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)                                                                                                                                                                                                                                               |
| <b>Civil Aeronautics Law</b>                                               | Forbidden (Ordinance Art.194)                                                                                                                                                                                                                                                                                                                                                             |
| <b>Marine Pollution Prevention Law</b>                                     | Marine pollutants (P and PP substances)                                                                                                                                                                                                                                                                                                                                                   |
| <b>Pollutant Release and Transfer Register Law (2023.4.1-)</b>             | Not applicable                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Export Trade Control Order</b>                                          | Appendix 1 Export licensed items                                                                                                                                                                                                                                                                                                                                                          |
| <b>Air Pollution Control Law</b>                                           | Hazardous Air Pollutants                                                                                                                                                                                                                                                                                                                                                                  |

| Chemical Name                          | Poisonous and Deleterious Substances Control Law | Industrial Safety and Health Act Substances (Law Art.57-2) | Pollutant Release and Transfer Register Law (2023.4.1-) |
|----------------------------------------|--------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|
| 1,1-Dimethylhydrazine 57-14-7 ( 98.0 ) | Applicable                                       | 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

### Record of SDS revisions Disclaimer

The following contents were revised. Regulatory information.

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