

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 27-Sep-2023
 Revision Number 3.07

Section 1: PRODUCT AND COMPANY IDENTIFICATION

| | |
|---------------------|-------------------------------|
| Product Name | Formaldehyde Solution |
| Product Code | 062-00407,064-00406,064-00401 |

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 4 |
| Acute toxicity - Dermal | Category 3 |
| Acute toxicity - Inhalation (Vapors) | Category 2 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2A |
| Respiratory sensitization | Category 1 |
| Skin sensitization | Category 1 |
| Germ cell mutagenicity | Category 2 |
| Carcinogenicity | Category 1A |
| Reproductive Toxicity | Category 1B |
| Specific target organ toxicity (single exposure) | Category 1 |
| Category 1 nervous system, respiratory system, central nervous system | |
| Specific target organ toxicity (repeated exposure) | Category 1 |
| Category 1 respiratory system, central nervous system, Visual organ | |
| Acute aquatic toxicity | Category 2 |
| Chronic aquatic toxicity | Category 3 |

Pictograms



Signal word Danger

Hazard statements

- H227 - Combustible liquid
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H302 - Harmful if swallowed
- H311 - Toxic in contact with skin
- H330 - Fatal if inhaled
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H341 - Suspected of causing genetic defects
 H350 - May cause cancer
 H360 - May damage fertility or the unborn child
 H317 - May cause an allergic skin reaction
 H401 - Toxic to aquatic life
 H412 - Harmful to aquatic life with long lasting effects
 H370 - Causes damage to the following organs: nervous system, respiratory system, central nervous system
 H372 - Causes damage to the following organs through prolonged or repeated exposure: respiratory system, central nervous system, Visual organ

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
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- 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
- Avoid release to the environment
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

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
- IF ON SKIN: Wash with plenty of soap and water
- Call a POISON CENTER or doctor/physician if you feel unwell
- Remove/Take off immediately all contaminated clothing
- Wash contaminated clothing before reuse
- If skin irritation or rash occurs: Get medical advice/attention
- IF INHALED: If breathing is difficult, 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
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- In case of fire: Use suitable extinguishing media for extinction

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 Mixture

| Chemical Name | Weight-% | Molecular weight | ENCS | ISHL No. | CAS RN |
|---------------|----------|------------------|---------|----------|-----------|
| Water | <60 | 18.02 | N/A | N/A | 7732-18-5 |
| Formaldehyde | 36-38 | 30.03 | (2)-482 | * | 50-00-0 |
| Methanol | 5-10 | 32.04 | (2)-201 | * | 67-56-1 |

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

Impurities and/or Additives: Stabilizer: Methanol 5-10%

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), 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.

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 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. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

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 | Polyethylene, Polyethylene terephthalate |
| 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 |
|-------------------------|---|-------------------|--|
| Formaldehyde 50-00-0 | Ceiling: 0.2 ppm Ceiling: 0.24 mg/m ³ TWA: 0.1 ppm OEL TWA: 0.12 mg/m ³ OEL ISHL/ACL: 0.1 ppm | ISHL/ACL: 0.1 ppm | STEL: 0.3 ppm TWA: 0.1 ppm |
| Methanol 67-56-1 | 200ppm(260mg/m ³) | 200ppm | TWA 200ppm(260mg/m ³) STEL 250ppm |

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 |
| 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 - nearly 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 | 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 | 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 and Ethanol : Very soluble. |
| n-Octanol/water partition coefficient:(log Pow) | no data available |
| Vapour pressure | no data available |
| Specific Gravity / Relative density | 1.085 - 1.100 g/mL |
| 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, Heat, flames and sparks, static electricity, spark

Incompatible materials
 Strong oxidizing agents

Hazardous decomposition products
 Carbon monoxide (CO), Carbon dioxide (CO₂)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|-------------------------|------------------------|-------------------------------------|
| Formaldehyde | 600 - 800 mg/kg (Rat) | 270 mg/kg (Rabbit) | 0.578 mg/L (Rat) 4 h |
| Methanol | 1400 mg/kg (Human) | 15800 mg/kg (Rabbit) | >31500 ppm (Rat) 4 h (vapor) |

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

Serious eye damage/ irritation

| Chemical Name | Serious eye damage/irritation source information |
|---------------|--|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

Respiratory or skin sensitization

| Chemical Name | Respiratory or Skin sensitization source information |
|---------------|--|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

Reproductive cell mutagenicity

| Chemical Name | germ cell mutagenicity source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

Carcinogenicity

| Chemical Name | Carcinogenicity source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

| Chemical Name | NTP | IARC | ACGIH | JSOH (Japan) |
|-------------------------|-------|---------|-------|--------------|
| Formaldehyde 50-00-0 | Known | Group 1 | A1 | Group 2A |

Reproductive toxicity

| Chemical Name | Reproductive toxicity source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

STOT-single exposure

| Chemical Name | STOT -single exposure- source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

STOT-repeated exposure

| Chemical Name | STOT -repeated exposure- source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

Aspiration hazard

| Chemical Name | Aspiration Hazard source information |
|---------------|---|
| Formaldehyde | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. |

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

| Chemical Name | Algae/aquatic plants | Fish | Crustacea |
|---------------|----------------------|---|--|
| Formaldehyde | N/A | LC50: <i>Pimephales promelas</i> 22.6 - 25.7 mg/L 96 h | LC50 : <i>Cypridopsis sp.</i> 0.00094 mg/L 24 h |
| Methanol | N/A | LC50 : <i>Lepomis macrochirus</i> 15400 mg/L 96 h | LC50 : <i>Artemia</i> 1340 mg/L 96 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 |
|---------------|--|---|
| Formaldehyde | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. |
| Methanol | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. |

| | |
|--------------------------------------|--|
| Persistence and degradability | Degree of decomposition: 91 % by BOD (METI Existing chemical safety inspections) |
| 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 | UN2209 |
| Proper shipping name: | Formaldehyde solution |
| UN classification | 8 |
| Subsidiary hazard class | |
| Packing group | III |
| Marine pollutant | Not applicable |

IMDG

UN number UN2209
Proper shipping name: Formaldehyde solution
UN classification 8
Subsidiary hazard class
Packing group III
Marine pollutant (Sea) Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

IATA

UN number UN2209
Proper shipping name: Formaldehyde solution
UN classification 8
Subsidiary hazard class
Packing group III
Environmentally Hazardous Substance Not applicable

Section 15: REGULATORY INFORMATION

Japanese regulations

| | |
|--|---|
| Fire Service Act | Firefighting Inhibitor |
| 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, Para.1, Enforcement Order Art.18) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.548,560 Class 2 Organic Solvents (Enforcement Order Attached Table No.6-2, Ordinance on Prevention of Organic Solvent Poisoning Art.1, Para.1, Item 5) Group 2 Specified Chemical Substance Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1) 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 |
| Pollutant Release and Transfer Register Law (2023.4.1-) | Specified Class 1 No. |
| Specified Class 1-No. | 411 |
| 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, Priority Chemical 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 (2023.4.1-) |
|-----------------------------------|--|--|---|
| Formaldehyde 50-00-0 (36-38) | Applicable | Applicable | Applicable |
| Methanol 67-56-1 (5-10) | - | 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

The following contents were revised. Product and company Identification. Exposure controls/personal protection. Ecological information. 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