SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>1-Methyl-3-nitro-1-nitrosoguanidine (added water : abt. 50%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>138-14901</td>
</tr>
</tbody>
</table>

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 use only

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture
Acute toxicity - Oral Category 4
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Skin sensitization Category 1
Germ cell mutagenicity Category 2
Carcinogenicity Category 1B

Pictograms

Signal word
Danger

Hazard statements
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H302 - Harmful if swallowed
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H317 - May cause an allergic skin reaction

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
• Do not breathe dust/fume/gas/mist/vapors/spray
• Contaminated work clothing should not be allowed out of the workplace
• Protective gloves

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 skin irritation or rash occurs: Get medical advice/attention
• IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
• IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
• Rinse mouth.
• Do NOT induce vomiting.

Precautionary statements-(Storage)
• Store locked up.

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
CH3N(NO)C(:NH)NHNO2

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>Molecular weight</th>
<th>ENCS</th>
<th>ISHL No.</th>
<th>CAS RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine (after drying)</td>
<td>95.0</td>
<td>147.09</td>
<td>N/A</td>
<td>N/A</td>
<td>70-25-7</td>
</tr>
</tbody>
</table>

Impurities and/or Additives:
added water : abt. 50 %

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
Sweep up and gather scattered particles, and collect it in an empty airtight container.

#### 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**
Do not give shock. 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**
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity)

#### Storage
**Safe storage conditions**
Keep container protect from light tightly closed. Store in a cool (2-10 °C) place.

**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
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

#### Personal protective equipment
**Respiratory protection**
Dust mask

**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: pale yellow - brown
Appearance: crystals - powder or mass
Odor: No data available
Melting point/freezing point: 118 °C (dec.)
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:
Ethanol: soluble. Water: practically insoluble, or insoluble.
n-Octanol/water partition coefficient: (log Pow): No data available
Vapour pressure: No data available
Specific Gravity / Relative density: No data available
Vapour density: No data available
Particle characteristics: No data available

Section 10: STABILITY AND REACTIVITY

Stability
Reactivity: This product is self-reactive. May cause runaway reaction due to heat or light.
Chemical stability: May be altered by light.
Hazardous reactions:
React with alkalis to generate dizaomethane gas.
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 (CO2), Nitrogen oxides (NOx)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>378 mg/kg ( Rat )</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Acute toxicity -oral- source information: Based on the NITE GHS classification results.
Acute toxicity -dermal- source information: Based on the NITE GHS classification results.
Acute toxicity -inhalation gas-source information: Based on the NITE GHS classification results.
Skin irritation/corrosion

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Skin corrosion/irritation source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>Based on the NITE GHS classification results.</td>
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Serious eye damage/irritation

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Serious eye damage/irritation source information</th>
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<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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Respiratory or skin sensitization

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<thead>
<tr>
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<th>Respiratory or Skin sensitization source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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</table>

Reproductive cell mutagenicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Germ cell mutagenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>Based on the NITE GHS classification results.</td>
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</table>

Carcinogenicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>Based on the NITE GHS classification results.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>JSOH (Japan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>70-25-7</td>
<td>Group 2A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproductive toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Reproductive toxicity source information</th>
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<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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STOT-single exposure

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<thead>
<tr>
<th>Chemical Name</th>
<th>STOT -single exposure- source information</th>
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<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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STOT-repeated exposure

<table>
<thead>
<tr>
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<th>STOT -repeated exposure- source information</th>
</tr>
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<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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</table>

Aspiration hazard

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<thead>
<tr>
<th>Chemical Name</th>
<th>Aspiration Hazard source information</th>
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<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
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</table>

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

No information available

Other data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Short-term (acute) hazardous to the aquatic environment</th>
<th>Long-term (chronic) hazardous to the aquatic environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-3-nitro-1-nitrosoguanidine</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

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
**Section 15: REGULATORY INFORMATION**

**International Inventories**
- **EINECS/ELINCS**: Listed
- **TSCA**: Listed

**Japanese regulations**
- **Fire Service Act**: Category V, nitro compounds, dangerous grade 2
- **Poisonous and Deleterious Substances Control Law**: Not applicable
- **Industrial Safety and Health Act**: Substances with Health Hazards Prevention Guideline (Carcinogenicity Substance) No information available
- **Regulations for the carriage and storage of dangerous goods in ship**: No information available
- **Civil Aeronautics Law**: Forbidden (Ordinance Art.194)
- **Pollutant Release and Transfer Register Law**: Not applicable
- **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
- Chemical Dictionary, Kyoritsu 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