SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision Date  22-May-2020
Version  8.01

Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Gallium Standard Solution(Ga 1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>070-05781</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 purposes

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture
Corrosive to metals Category 1
Acute toxicity - Inhalation (Vapors) Category 4
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 1
Specific target organ toxicity (single exposure) Category 2
Specific target organ toxicity (repeated exposure) Category 2

Pictograms

Signal word Danger

Hazard statements
H290 - May be corrosive to metals
H315 - Causes skin irritation
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H371 - May cause damage to the following organs: respiratory system
H373 - May cause damage to the following organs through prolonged or repeated exposure: respiratory system, teeth

Precautionary statements-(Prevention)
• Use only outdoors or in a well-ventilated area
• Wash face, hands and any exposed skin thoroughly after handling
• Wear protective gloves/protective clothing/eye protection/face protection
• Do not breathe dust/fume/gas/mist/vapors/spray
• Do not eat, drink or smoke when using this product
• Keep only in original container

Precautionary statements-(Response)
• IF exposed or if you feel unwell: 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.
• Immediately call a POISON CENTER or doctor/physician
• IF ON SKIN: Wash with plenty of soap and water
• If skin irritation occurs: Get medical advice/attention
• Take off contaminated clothing and wash before reuse
• IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
• Call a POISON CENTER or doctor/physician if you feel unwell.
• Absorb spillage to prevent material damage

Precautionary statements-(Storage)
• Store locked up.
• Store in corrosive resistant/container with a resistant inner liner

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

<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>Water</td>
<td>&lt;97.0</td>
<td>18.02</td>
<td>N/A</td>
<td>N/A</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>Nitric Acid</td>
<td>3.15</td>
<td>63.01</td>
<td>(1)-394</td>
<td>公表</td>
<td>7697-37-2</td>
</tr>
<tr>
<td>Gallium</td>
<td>0.10</td>
<td>69.72</td>
<td>N/A</td>
<td>N/A</td>
<td>7440-55-3</td>
</tr>
</tbody>
</table>

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.

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 alkaline substances. 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.

Storage
Safe storage conditions
Storage conditions
Store away from sunlight in well-ventilated place at room temperature (under 25 °C).
Keep container tightly closed.

Safe packaging material
Polyethylene

Incompatible substances
Metals, Strong bases

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>JSOH (Japan)</th>
<th>ISHL (Japan)</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid 7697-37-2</td>
<td>2ppm, 5.2mg/m³</td>
<td>N/A</td>
<td>STEL: 4 ppm TWA: 2 ppm</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
Gas mask for acidic gas

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: 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: acidic
- Viscosity (coefficient of viscosity): No data available
- Dynamic viscosity: No data available
- Solubilities: No data available
- 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: No data available
- Chemical stability: Stable under recommended storage conditions.
- Hazardous reactions: Corrodes metals.
- Conditions to avoid: Extremes of temperature and direct sunlight
- Incompatible materials: Metals, Strong bases
- Hazardous decomposition products: Nitrogen oxides (NOx), Metal oxides

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Acute toxicity -oral- source information</th>
<th>Acute toxicity -dermal- source information</th>
<th>Acute toxicity -inhalation gas-source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Acute toxicity -inhalation vapor- source information</th>
<th>Acute toxicity -inhalation dust- source information</th>
<th>Acute toxicity -inhalation mist- source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

Skin irritation/corrosion

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Skin corrosion/irritation source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

Serious eye damage/irritation

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Serious eye damage/irritation source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>
Nitric Acid
Based on the NITE GHS classification results.

Respiratory or skin sensitization

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Respiratory or Skin sensitization source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

Reproductive cell mutagenicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Reproductive cell mutagenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
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</tbody>
</table>

Carcinogenicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</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>Nitric Acid</td>
<td>-</td>
<td>Group 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7697-37-2</td>
<td></td>
<td>Group 2A</td>
<td></td>
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</tbody>
</table>

Reproductive toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Reproductive toxicity source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

STOT-single exposure

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>STOT -single exposure- source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

STOT-repeated exposure

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>STOT -repeated exposure- source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Aspiration Hazard source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>Based on the NITE GHS classification results.</td>
</tr>
</tbody>
</table>

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>N/A</td>
<td>LC50: Gambusia affinis 72 mg/L 96 h</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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>Nitric Acid</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

ADR/RID
UN number: UN2031
Proper shipping name: Nitric acid
UN classification 8
Subsidiary hazard class II
Packing group II
Marine pollutant Not applicable

IMDG
UN number UN2031
Proper shipping name: Nitric acid
UN classification 8
Subsidiary hazard class II
Packing group II
Marine pollutant (Sea) Not applicable
Transport in bulk according to No information available
Annex II of MARPOL 73/78 and the IBC Code

IATA
UN number UN2031
Proper shipping name: Nitric acid
UN classification 8
Subsidiary hazard class II
Packing group II
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 Notifiable Substances (Law Art.57-2, Enforcement Oder Art.18-2 Attached Table No.9) No.307 Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) Group 3 Specified Chemical Substance, (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Item 6)

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 Nortification 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 Not applicable
Water Pollution Control Act Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)

Export Trade Control Order Not applicable

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Poisonous and Deleterious Substances Control Law</th>
<th>Industrial Safety and Health Act Substances (Law Art.57-2)</th>
<th>Pollutant Release and Transfer Register Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid</td>
<td>-</td>
<td>Applicable</td>
<td>-</td>
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<tr>
<td>7697-37-2 (3.15)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Section 16: OTHER INFORMATION

Key literature references and NITE: National Institute of Technology and Evaluation (JAPAN)
sources for data etc.  
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, Kyouritsu Publishing Co., Ltd.

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