SAFETY DATA SHEET

According to JIS Z 7253:2012
Revision Date 25-May-2018
Version 2

Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Levamisole Hydrochloride Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>126-04991</td>
</tr>
<tr>
<td>CAS No</td>
<td>16595-80-5</td>
</tr>
<tr>
<td>Formula</td>
<td>C11H12N2S·HCl</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>FUJIFILM Wako Pure Chemical Corporation</td>
</tr>
<tr>
<td></td>
<td>1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan</td>
</tr>
<tr>
<td></td>
<td>Phone: +81-6-6203-3741</td>
</tr>
<tr>
<td></td>
<td>Fax: +81-6-6203-5964</td>
</tr>
<tr>
<td>Supplier</td>
<td>FUJIFILM Wako Pure Chemical Corporation</td>
</tr>
<tr>
<td></td>
<td>1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan</td>
</tr>
<tr>
<td></td>
<td>Phone: +81-6-6203-3741</td>
</tr>
<tr>
<td></td>
<td>Fax: +81-6-6203-2029</td>
</tr>
<tr>
<td>Emergency telephone number</td>
<td>+81-6-6203-3741 / +81-3-3270-8571</td>
</tr>
<tr>
<td>Recommended uses and restrictions on use</td>
<td>For research purposes</td>
</tr>
<tr>
<td>Announcement of company name change</td>
<td>Company name has changed since April 1, 2018. Former name was &quot;Wako Pure Chemical Industries, Ltd.&quot;</td>
</tr>
</tbody>
</table>

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture
Acute toxicity - Oral Category 3
Specific target organ toxicity (repeated exposure) Category 1

Pictograms

Signal word Danger

Hazard statements
H301 - Toxic if swallowed
H372 - Causes damage to the following organs through prolonged or repeated exposure: blood

Precautionary statements-(Prevention)
- 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

Precautionary statements-(Response)
• Get medical advice/attention if you feel unwell
• IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
• Rinse mouth.

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 
C11H12N2S·HCl

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>Molecular weight</th>
<th>ENCS</th>
<th>ISHL No.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levamisole</td>
<td>99.0</td>
<td>240.8</td>
<td>(9)-836</td>
<td>8-(7)-510,8-(7)-546</td>
<td>16595-80-5</td>
</tr>
<tr>
<td>Hydrochloride</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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
Water spray (fog), Carbon dioxide (CO2), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media
No information available

Special extinguishing method
No information available

Specific hazards arising from the chemical product
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Protection of 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.

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
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.

Storage
Safe storage conditions

- Storage conditions: Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. 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
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: Protection gloves
- Eye protection: protective eyeglasses or chemical safety goggles
- Skin and body protection: protective boots, 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: White - nearly white
- Appearance: crystalline powder - powder
Section 10: STABILITY AND REACTIVITY

Stability

Stability
May be altered by light.

Reactivity
No data available

Hazardous reactions
None under normal processing

Conditions to avoid
Extremes of temperature and direct sunlight

Incompatible materials
Strong oxidizing agents

Hazardous decomposition products
Carbon monoxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), Sulfur oxides (SOx), Hydrogen chloride (HCl) gas

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>Levamisole Hydrochloride</td>
<td>180 mg/kg (Rat)</td>
<td>N/A</td>
<td>N/A</td>
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</table>

Skin irritation/corrosion

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Skin corrosion irritation source information</th>
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<tbody>
<tr>
<td>Levamisole Hydrochloride</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 source information</th>
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<tbody>
<tr>
<td>Levamisole Hydrochloride</td>
<td>Based on the NITE GHS classification results.</td>
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<tr>
<td><strong>Chemical Name</strong></td>
<td><strong>Respiratory or skin sensitization source information</strong></td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
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<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>Reproductive cell mutagenicity source information</strong></th>
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<tbody>
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<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>Carcinogenicity source information</strong></th>
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<thead>
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<th><strong>Reproductive toxicity source information</strong></th>
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<tr>
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<td>Based on the NITE GHS classification results.</td>
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<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>STOT -single exposure- source information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Levamisole Hydrochloride</td>
<td>Based on the NITE GHS classification results.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>STOT -repeated exposure- source information</strong></th>
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<tbody>
<tr>
<td>Levamisole Hydrochloride</td>
<td>Based on the NITE GHS classification results.</td>
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<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>Aspiration Hazard source information</strong></th>
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<tbody>
<tr>
<td>Levamisole Hydrochloride</td>
<td>Based on the NITE GHS classification results.</td>
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</table>

### Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

No information available

**Other data**

<table>
<thead>
<tr>
<th><strong>Chemical Name</strong></th>
<th><strong>Aquatic toxicity -Acute- source information</strong></th>
<th><strong>Aquatic toxicity -Chronic- source information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Levamisole Hydrochloride</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**: UN2811
- **Proper shipping name**: Toxic solid, organic, n.o.s. (Levamisole Hydrochloride)
- **UN classification**: 6.1
- **Subsidiary hazard class**: Not applicable
- **Packing group**: III
Marine pollutant: Not applicable

IMDG
- UN number: UN2811
- Proper shipping name: Toxic solid, organic, n.o.s. (Levamisole Hydrochloride)
- UN classification: 6.1
- Subsidiary hazard class: III
- 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: UN2811
- Proper shipping name: Toxic solid, organic, n.o.s. (Levamisole Hydrochloride)
- UN classification: 6.1
- Subsidiary hazard class: III
- Packing group: III
- Environmentally Hazardous Substance: Not applicable

Section 15: REGULATORY INFORMATION

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

Japanese regulations
- Fire Service Act: Not applicable
- Poisonous and Deleterious Substances Control Law: Deleterious Substances 3rd. Grade
- Industrial Safety and Health Act: Not applicable
- Regulations for the carriage and storage of dangerous goods in ship: Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
- Civil Aeronautics Law: Toxic and Infectious Substances (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
- 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.
- IATA dangerous Goods Regulations
- RTECS:Registry of Toxic Effects of Chemical Substances
- Japan Industrial Safety and Health Association GHS Model SDS
- Dictionary of Synthetic Oraganic Chemistry , SSOJ, Koudansha Scientific Co.Ltd.
- Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
- etc

Disclaimer
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(2014). *JIS: Japanese Industrial Standards
Product information

You might get a product which indicates a former company name, during the period of transition.

End of Safety Data Sheet