SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision Date 26-Mar-2021
Version 5.03

Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>2-Ethyl-1-hexanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>052-03826</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>FUJIFILM Wako Pure Chemical Corporation</td>
</tr>
<tr>
<td></td>
<td>1-2 Doshomachi 3-Chome</td>
</tr>
<tr>
<td></td>
<td>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 use only</td>
</tr>
</tbody>
</table>

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture

- Flammable liquids: Category 4
- Skin corrosion/irritation: Category 2
- Serious eye damage/eye irritation: Category 2A
- Reproductive Toxicity: Category 2
- Specific target organ toxicity (single exposure): Category 2, Category 3
- Short-term (acute) hazardous to the aquatic environment: Category 2

Pictograms

Signal word: Warning

Hazard statements

- H227 - Combustible liquid
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H361 - Suspected of damaging fertility or the unborn child
- H366 - May cause drowsiness or dizziness
- H401 - Toxic to aquatic life
- H371 - May cause damage to the following organs: 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.
• Wash face, hands and any exposed skin thoroughly after handling
• Do not breathe dust/fume/gas/mist/vapors/spray
• Do not eat, drink or smoke when using this product
• Use only outdoors or in a well-ventilated area
• Avoid release to the environment
• Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• Keep cool

Precautionary statements-(Response)
• IF exposed or concerned: Get medical advice/attention
• 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
• 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.
• In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary statements-(Storage)
• Store locked up.
• Store in a well-ventilated place. Keep container tightly closed

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
CH3(CH2)3CH(C2H5)CH2OH

<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>2-Ethyl-1-hexanol</td>
<td>98.0</td>
<td>130.23</td>
<td>(2)-217</td>
<td>公表</td>
<td>104-76-7</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

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**
Highly flammable. Avoid contact with high temperature objects, spark, and 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**
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**
Store away from sunlight in well-ventilated place at room temperature (preferably cool). Keep container tightly closed.

**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**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>JSOH (Japan)</th>
<th>ISHL (Japan)</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethyl-1-hexanol</td>
<td>TWA: 1 ppm OEL</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>104-76-7</td>
<td>TWA: 5.3 mg/m³ OEL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Personal protective equipment**

| Respiratory protection   | Protective mask   |
| Hand protection          | 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  characteristic odor

Melting point/freezing point  -76 °C
Boiling point, initial boiling point and boiling range  184 - 185 °C

Flammability  Combustible liquid
Evaporation rate:  No data available
Flammability (solid, gas):  No data available
Upper/lower flammability or explosive limits
- Upper: 9.7
- Lower: 0.9
Flash point  85 °C
Auto-ignition temperature:  231
Decomposition temperature:  No data available
pH  No data available
Viscosity (coefficient of viscosity)  No data available
Dynamic viscosity  No data available
Solubilities  ethanol, acetone: freely soluble, water: practically insoluble, or insoluble.
n-Octanol/water partition coefficient: (log Pow)  No data available
Vapour pressure  48 Pa
Specific Gravity / Relative density  0.830 - 0.836 g/mL (20°C)
Vapour density  4.5 (air=1)
Particle characteristics  No data available

Section 10: STABILITY AND REACTIVITY

Stability
Reactivity  No data available
Chemical stability  Stable under recommended storage conditions.

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 monooxide (CO), Carbon dioxide (CO2)

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>2-Ethyl-1-hexanol</td>
<td>3730 mg/kg (Rat)</td>
<td>1980 mg/kg (Rabbit)</td>
<td>&gt; 227 ppm (Rat) 6 h</td>
</tr>
</tbody>
</table>

<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>2-Ethyl-1-hexanol</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>
### 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>2-Ethyl-1-hexanol</td>
<td>EC50 : Desmodesmus subspicatus 11.5 mg/L 72 h</td>
<td>LC50 : Lepomis macrochirus 10 mg/L 96 h</td>
<td>EC50 : Daphnia magna 39 mg/L 48 h</td>
</tr>
</tbody>
</table>

#### Other data

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Short-term (acute) hazardous to the aquatic environment source information</th>
<th>Long-term (chronic) hazardous to the aquatic environment source information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethyl-1-hexanol</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**
- Degree of decomposition: 89% 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

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>Not regulated</th>
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<tbody>
<tr>
<td>UN number</td>
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<tr>
<td>Proper shipping name:</td>
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</tr>
<tr>
<td>UN classification</td>
<td></td>
</tr>
<tr>
<td>Subsidiary hazard class</td>
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</tr>
<tr>
<td>Packing group</td>
<td></td>
</tr>
<tr>
<td>Marine pollutant</td>
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</table>

<table>
<thead>
<tr>
<th>IMDG</th>
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<td>UN classification</td>
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<tr>
<td>Subsidiary hazard class</td>
<td></td>
</tr>
<tr>
<td>Packing group</td>
<td></td>
</tr>
<tr>
<td>Marine pollutant (Sea)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</td>
<td>No information available</td>
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<table>
<thead>
<tr>
<th>IATA</th>
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<tbody>
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<td>Proper shipping name:</td>
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<td>UN classification</td>
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<tr>
<td>Subsidiary hazard class</td>
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<td>Packing group</td>
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<tr>
<td>Environmentally Hazardous Substance</td>
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</table>

Section 15: REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>International Inventories</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS/ELINCS</td>
</tr>
<tr>
<td>TSCA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Japanese regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Service Act</td>
</tr>
<tr>
<td>Poisonous and Deleterious Substances Control Law</td>
</tr>
<tr>
<td>Industrial Safety and Health Act</td>
</tr>
<tr>
<td>Regulations for the carriage and storage of dangerous goods in ship</td>
</tr>
<tr>
<td>Civil Aeronautics Law</td>
</tr>
<tr>
<td>Pollutant Release and Transfer Register Law</td>
</tr>
<tr>
<td>Export Trade Control Order</td>
</tr>
</tbody>
</table>

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, Kyouritsu 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