Section 1 – CHEMICALS AND COMPANY IDENTIFICATION

Chemical Identifier: CELLOXIDE 2021P [CEL 2021P]
Product Code: ODP–OH–CEL2021P–01
Reference Number: yuuki257–12

Manufacturer
Company Name: DAICEL CORPORATION
Address: 2–18–1, Konan, Minato–ku, Tokyo 108–8230, Japan
Company Contact: Organic Chemical Products Company
Phone Number: +81–3–6711–8211
Fax Number: +81–3–6711–8218
Emergency Phone Number: Organic Chemical Products Company

Responsible company for supply
Company Name: Daicel ChemTech, Inc.
Address: One Parker Plaza, 400 Kelby Street Fort Lee, New Jersey 07024
Phone Number: +1–201–461–4466
Fax Number: +1–201–461–2776
Email: inquiry@us.daicel.com
Recommended Use and Restriction on Use: general industrial

ID: CEL2021P_US03_E10

Section 2 – HAZARDS IDENTIFICATION

GHS Classification

Physicochemical Hazards: Explosives Out of category
Flammable liquids Out of category
Self–reactive substances and mixtures Out of category
Pyrophoric liquids Out of category

Health Hazards: Acute toxicity – oral Out of category
Acute toxicity – dermal Out of category
Acute toxicity – inhalation (mist) Out of category
Skin corrosion/irritation Out of category
Serious eye damage/eye irritation Out of category
Sensitization – skin Category 1
Germ cell mutagenicity Out of category

Environmental Hazards: Hazard to the aquatic environment (acute hazard) Category 3
Other hazards than mentioned above are Not applicable or No data available.

GHS Label Elements

Symbols

Signal Word: Warning
Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Distinction of Substance or Mixture</th>
<th>Chemical name or generic name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance</td>
<td>(3’,4’-Epoxycyclohexane)methyl 3,4-epoxycyclohexylcarboxylate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name or Generic Name</th>
<th>Concentration or Its Ranges</th>
<th>Formula</th>
<th>CAS RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3’,4’-Epoxycyclohexane)methyl 3,4-epoxycyclohexylcarboxylate</td>
<td>≥97%</td>
<td>C14H20O4</td>
<td>2386-87-0</td>
</tr>
</tbody>
</table>

Impurities and/or Stabilizing Additives which Contribute to the Classification

No information available

Section 4 - FIRST AID MEASURES

Inhalation

Remove person to fresh air and keep comfortable for breathing. Immediately call a doctor. IF exposed or concerned: Get medical advice and attention.

Skin Contact

Take off or dispose of all polluted clothes. Rinse skin with water or shower. Immediately call a doctor. Get medical advice and attention.

Eye Contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor. Get medical advice and attention.

Ingestion

Rinse mouth. Do NOT induce vomiting. Immediately call a doctor. Get medical advice and attention.

Section 5 - FIRE FIGHTING MEASURES

Immediately call a doctor. Get medical advice and attention.
Extinguishing Media

- Small fires: Dry chemical, dry sand, alcohol-resistant foam.
- Large fire: Dry chemicals, alcohol-resistance foam extinguishing agents and water sprinkling.

Unsuitable Extinguishing Media

- Straight streams.

Specific Hazards

- Fire may produce irritating, corrosive and/or toxic gases.
- Contaminated fire fighting water or dilution water are corrosive and/or toxic and may cause damage to a person concerned with fire extinguishing.
- May be ignited by heat, sparks or flames.

Specific Fire Fighting Protection of Fire Fighter

- Use extinguishing agent suitable for type of surrounding fire.
- Move containers from fire area if you can do it without risk.

Protection of Fire Fighter

- In fire fighting, wear respiratory protection and chemical protective clothing.

Section 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

- Keep unauthorized personnel away.
- Wear appropriate personal protective equipment (Refer to “Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION”) and avoid inhalation or contact with eyes and skin.
- Isolate the site as a leak area by providing a zone that has an appropriate width to all directions.
- Keep out of low areas.
- Stay upwind.
- Do not touch or walk through spilled material.
- Pay attention not to cause the influence on the environment by discharging into rivers.
- Stop leak if you can do it without risk.
- All equipment used when handling the product must be grounded.
- Small spills; absorb or cover with dry earth, sand or other non-combustible material and transfer to containers for later disposal.
- Small spills; Use clean non-sparking tools to collect absorbed material.
- Large spills; prevent flowing out with a dike and collect it at a safe place.

Environmental Precautions

Methods and Equipment for Containment and Cleaning up

- A vapor suppressing foam may be used to reduce vapors.
- Removes all ignition sources promptly. (Prohibition of smoking, sparks, and flames in the surrounding area).
- Isolate flammables (such as wood, paper, and oil) from the leakage.
- Prevent flowing into drain, sewage, basement, and closed area.

Section 7 – HANDLING AND STORAGE
Handling Technical Measures
Provide ventilation system and use necessary personal protective equipment as described in “Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION”.

Precautions for Safe Handling
Do not handle until all safety precautions have been read and understood.
Handle at a well-ventilated place.
Avoid release to the environment.
Do not get in eyes, on skin or on clothing.
Ventilate the exhaust to keep the concentration in the air below the exposure limit.
Obtain special instructions before use.
Use properly by reading “Precautions for Use” labeled on the container before use or disposal.
Wash hand thoroughly after handling.
Prohibit use of heat, sparks, and fire in the surrounding area.
Do not contact, breathe or swallow.
Do not expose to temperatures exceeding appropriate temperature.
Do not breathe dust and fume.
Do not handle containers with such manners as tumbling down, falling, exposing to shock, or dragging.

Prevents Handling of Incompatible Substances or Mixtures
Refer to “Section 10 – STABILITY AND REACTIVITY”.

Specific Hygiene Measures
Wash hand thoroughly after handling.

Storage Precautionary Statements
Technical Measures
The storage facility should be provided with necessary lighting, lighting equipment, and ventilator to store and handle dangerous goods.
The storage floor should have penetration-proof construction against dangerous goods and be inclined adequately. A proper sump should be provided to catch any spills.
The roof of a storage facility should be made of a non-combustible material and use metals or other lightweight non-combustible materials. No ceiling should be installed.
The storage facility should be designed with fire-proof construction and beams should use a non-combustible material.
Refer to “Section 10 – STABILITY AND REACTIVITY”.
Store away from incompatible materials.
Store locked up.
Have containers keep away from direct sunlight and heat.
Store in a well-ventilated and cool place keeping container tightly closed.

Material Used in Packaging/Containers
Use containers prescribed in the “Fire Service Law (Japan)” and the “UN Transport Regulations”.
Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Exposure Limits (ACGIH)</th>
<th>Engineering Controls</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3',4’-epoxycyclohexane) methyl 3,4epoxycyclohexyl-carboxylate</td>
<td>Workplace storing or handling this product should be equipped with eye washing station and safety shower. Use process enclosures, local exhaust ventilation, or other engineering controls. Install ventilation system to keep exposure to airborne contaminants below the exposure limit if vapor, fume, mist generates in the process handling at elevated temperature. Take precautionary measures against static discharge. Use explosion-proof electrical, ventilating and lighting equipment. Install explosion-proof local ventilation equipment. Ground or bond container and receiving equipment.</td>
<td>Wear protective gloves. Protection glasses (ordinary glasses, ordinary glasses with side shields, and goggles). Wear protective clothing and face protection.</td>
</tr>
</tbody>
</table>

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless or light yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial Boiling Point and Boiling Ranges</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>202°C (Cleveland Open Cup)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability or Explosive Limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower Limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper Limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific Gravity (Density)</td>
<td>1.172</td>
</tr>
<tr>
<td>Partition Coefficient : n-Octanol/Water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-Ignition Temperature</td>
<td>375°C</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Kickoff temperature 288°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Other Property

Surface tension 61.00mN/m

Section 10 – STABILITY AND REACTIVITY
Reactivity
Chemical stability

No data available
Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reaction

Contact with strong oxidizers, strong alkalis, or strong acids may cause fire and explosions.

Conditions to Avoid

Fire, heat, incompatibles.

Incompatible Substances or Mixtures

Strong oxidizers, strong alkalis, strong acid.

Hazardous Decomposition Products

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Section 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity

Out of category; LD50 > 5000mg/kg (Rat)

Out of category; LD50 > 2000mg/kg (Rabbit)

Out of category; LD50 > 5.19mg/L (4hr, Rat)

Skin Corrosion/Irritation

Out of category; Skin irritation test (4hr, 500mg, rabbit); mild, P.I.I=1.35.

Serious eye damage/eye irritation

Out of category; Eye irritation test (rabbit); no irritation.

Respiratory or Skin Sensitization

Category 1; Skin sensitization test (Maximization Test, Guinea pig); positive, LLNA–DA method (TG442A simplified test method); positive (weak sensitization).

Germ Cell Mutagenicity

Out of category; From the result of Mammalian Erythrocyte Micronucleus Test (in vivo somatic cell mutagenicity tests in mammals, TG474) : negative. Ames test : positive, In vivo unscheduled DNA synthesis (UDS) test(TG486) : negative.

Section 12 – ECOLOGICAL INFORMATION

Hazard to the aquatic environment (acute hazard)

Out of category; LD50 > 5000mg/kg (Rat)

Out of category; LD50 > 2000mg/kg (Rabbit)

Out of category; LD50 > 5.19mg/L (4hr, Rat)

Hazard to the aquatic environment (long-term hazard)

EC50 = 24mg/L (96hr, Oncorhynchus mykiss)

No data available

Ecotoxicity

LC50 = 24mg/L (96hr, Oncorhynchus mykiss)

No data available

Hazard to the ozone layer

No data available

Section 13 – DISPOSAL CONSIDERATIONS
Residual Waste

Commission a waste disposal company, or a local public body who are licensed by local or regional government, to dispose of the material.
Disposal should be in accordance with applicable regulations and standards by the respective local governments.
When commissioning the disposal to a disposal company, notify the danger and toxicity thoroughly to the company.

Contaminated Container and Packaging

In case of disposal of empty containers, remove the content thoroughly.
Recycle containers after cleansing, or carry out the disposal under the related laws and regulations and the standards of the local governments.

Section 14 – TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>International Regulations</th>
<th>Regulatory Information by Sea</th>
<th>Marine Pollutant Transport in bulk according to MARPOL 73/78,Annex II and the IBC code</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Response Guide Number</td>
<td>Regulatory Information by Air</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Section 15 – REGULATORY INFORMATION

| Details of international registration status | ENCS(Japan); 3–2452 | TSCA(USA); Listed | Reach(EU); Listed | DSL(Canada); Listed | ECL(Korea); KE27441 | IECSC(China); Listed | ECN(Taiwan); Listed | PICCS(Philippines); Listed | NZIoC(New Zealand); Listed | AICS(Australia); Listed |

Section 16 – OTHER INFORMATION

<table>
<thead>
<tr>
<th>Information Contact</th>
<th>See Sec.1 (Company identification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Property</td>
<td>Notice to Reader : To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of information contained herein. Final determination of suitability of any material is the sole responsibility of the information contained herein. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.</td>
</tr>
</tbody>
</table>