Product name: INGEOM™ LACTIDE

Product code: M700

Revision Number: 6
Revision date: 06/21/2022
Print date: 06/21/2022

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: INGEOM™ LACTIDE
Product code: M700
Product Use: Use as an intermediate
Polymer preparations and compounds
raw material for polymer (monomer)

Supplier:
NatureWorks
17400 Medina Rd, Suite# 800
Plymouth, MN 55447
sdsinquiry@natureworksllc.com
+1-952-562-3450

Emergency telephone numbers (24 hours a day):
(Medical Information) +1-(651)-632-9273
(Transportation Information) CHEMTREC: +1-(800)-424-9300 (in the United States)
(Transportation Information) CHEMTREC: +1-(703)-527-3887 (outside the United States)

2. HAZARDS IDENTIFICATION

Classification: Serious Eye Damage/Eye Irritation (Category 1).
Signal word: Danger

Hazard Statements: H318 - Causes serious eye damage

Precautionary Statements: P280 - Wear protective gloves/protective clothing/eye protection/face protection. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Potential Health Effects: See Section 11 for more information

Environmental Precautions: See Section 12 for more information

Other Hazards: Decomposes in contact with water. Hazardous decomposition products: Lactic Acid. The following addresses exposure to some of the ingredients of Lactic Acid, not exposure to the product. Avoid contact with eyes, skin, and clothing. Contact may irritate or burn skin and eyes. Contact may cause burns to skin and eyes. May cause permanent eye injury. For additional information, see Safety Data Sheet.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name and CAS</th>
<th>Weight %</th>
<th>OSHA Exposure Limits</th>
<th>ACGIH Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactide 95-96-5</td>
<td>90 - 100%</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

All ingredients in quantities > 1.0% (0.1% for carcinogens) that are potentially hazardous per OSHA definitions.

4. FIRST AID MEASURES

Emergency telephone numbers (24 hours a day):
(Medical Information) +1-(651)-632-9273

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**5. FIRE-FIGHTING MEASURES**

**Flammability:**
- **Autoignition temperature:** Not determined

**Flammability Limits in Air:**
- **Flammable limits in air – lower (%):** Not determined
- **Flammable limits in air – upper (%):** Not determined

**Suitable extinguishing media:** Carbon dioxide (CO2), Dry chemical, Foam, Water spray or fog, Alcohol resistant foams are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

**Unsuitable extinguishing media:** Do not use a solid water stream as it may scatter and spread fire

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate area and fight fire from a safe distance. Avoid contact with skin and eyes. In case of contact. Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters’ protective clothing will provide adequate

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6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Isolate the spill area. Remove personnel from immediate area until material has cooled, either naturally or after soaking with an inert absorbent (e.g. vermiculite). Use with proper personal protective equipment (see Section 8). Avoid contact with skin and eyes. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid contact with eyes. Sweep up to prevent slipping hazard.

**Environmental precautions:** Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up:** Protect from water. Soak up with inert absorbent material. Allow material to solidify, and scrape up. Sweep up and shovel into suitable containers for disposal. Decomposes in contact with water. Do not release unneutralized acid. Absorb spilled liquid in suitable material. See section 13 for more information.

7. HANDLING AND STORAGE

**Safe handling advice:** Avoid contact with skin, eyes and clothing. Workers should be protected from the possibility of contact with molten material during fabrication. Avoid dust formation.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep under nitrogen blanket. Solidifies at about 176 °F (80 °C). Handling: Temperatures above 100 °C / 212 °F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure controls:**

**Engineering measures:** Ensure adequate ventilation. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.

**Exposure limits:** Not Established.

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Product name: INGEO™ LACTIDE
Product code: M700
Revision Number: 6
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Personal protective equipment:

**Eye protection:**
Goggles; Face-shield; Safety glasses with side-shields

**Skin and body protection:**
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact

**Hand protection:**
Preventive skin protection. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

**Hygiene measures:**
Ensure that eyewash stations and safety showers are close to the workstation location. Handle in accordance with good industrial hygiene and safety practice. Keep working clothes separately.

**Respiratory protection:**
Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract. Use NIOSH-approved air-purifying respirator with organic vapor cartridge or canister, as appropriate. Consult an industrial hygiene professional prior to respirator selection and use. Use a positive-pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Special hazard:**
Workers should be protected from the possibility of contact with molten material during fabrication.

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9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
<td>Solid Liquid</td>
</tr>
<tr>
<td>Color:</td>
<td>Yellow Amber</td>
</tr>
<tr>
<td>Odor:</td>
<td>Acrid</td>
</tr>
<tr>
<td>pH:</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor density:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water):</td>
<td>Not determined</td>
</tr>
<tr>
<td>Density:</td>
<td>Not determined</td>
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<tr>
<td>Decomposition temperature:</td>
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<tr>
<td>Boiling point / boiling range:</td>
<td>482-500°F / 250-260°C @ 101.3 kPa</td>
</tr>
<tr>
<td>Melting point / melting range:</td>
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<tr>
<td>Autoignition temperature:</td>
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<tr>
<td>Flash point:</td>
<td>150-160 °C</td>
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<tr>
<td>Flammability:</td>
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<tr>
<td>Flammability Limits in Air:</td>
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<tr>
<td>Water solubility:</td>
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<tr>
<td>Solubility:</td>
<td>No information available</td>
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<tr>
<td>Viscosity:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Other Standards:</td>
<td>None</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity: None expected under conditions of normal use.

Chemical stability: Hygroscopic. Stable under recommended storage conditions.

Conditions to avoid: Temperatures above 440°F (230°C). Exposure to moisture. Heat. Due to gaseous decomposition products, overpressure can occur in tightly sealed containers.

Materials to avoid: Strong bases, Oxidizing agents, Nitric acid, Hydrofluoric acid

Hazardous decomposition products: Carbon dioxide, Carbon monoxide (CO), Aldehydes, Organic acids

Possibility of hazardous reactions: None expected under conditions of normal use.

Polymerization: Polymerization can occur. At elevated temperatures organometallic compounds, nitric acid and hydrofluoric acid can catalyze polymerization.
11. TOXICOLOGICAL INFORMATION

**Principle routes of exposure:** Eye contact, Skin contact, Inhalation, Ingestion.

**Acute toxicity:** Specific symptoms in animal studies. Ingestion may cause gastrointestinal irritation, hausea, vomiting and diarrhea. May cause adverse kidney effects.

**Local effects:** Decomposes in contact with water. Hazardous decomposition products:. Lactic Acid. The following addresses exposure to some of the ingredients of Lactic Acid, not exposure to the product. Avoid contact with eyes, skin and clothing. Contact may irritate or burn skin and eyes. Contact may cause burns to skin and eyes. May cause permanent eye injury. For additional information, see Safety Data Sheet.

**Specific effects:** Inhalation may provoke the following symptoms:. Lung irritation. Severe shortness of breath. Difficulty in breathing. Ingestion may provoke the following symptoms:. Nausea. Diarrhoea. Vomiting.

**Long term toxicity:** No data available

**Mutagenic effects:** Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Did not show mutagenic effects in animal experiments

**Reproductive toxicity:** Based on available data, the classification criteria are not met

**Carcinogenic effects:** Based on available data, the classification criteria are not met.

**Target organ effects:** Reported animal effects, In case of ingestion, Organs affected:, stomach, kidneys

**Skin:** LD50/dermal/rabbit > 2000 mg/kg

**Ingestion:** LD50/oral/rat = >5000 mg/kg

12. ECOLOGICAL INFORMATION

**Ecotoxicity effects:** No data available

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13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Dispose of in accordance with federal, state and local regulations. Dispose of wastes in an approved waste disposal facility. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

THE COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT):
- Proper shipping name: This product is not regulated when shipped at room temperature.
- Hazard class: Not regulated
- UN-No: None
- Packing group: None
- Hazardous Substances RQs: None
- Additional information: Elevated temperature information for transport, Temperatures above 100 °C / 1003 °F, UN3257, Elevated temperature liquid, n.o.s., at or above 100°C (212°F), and below its flash point, 9, III, APPLIES ONLY DURING ROAD TRANSPORT, IATA - Substances Forbidden from Air Transport

IMDG:
- Proper shipping name: This product is not regulated when shipped at room temperature.
- Hazard class: Not regulated
- Packing group: None

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**Product name:** INGEO™ LACTIDE

**Product code:** M700  
**Revision Number:** 6  
**Revision date:** 06/21/2022  
**Print date:** 06/21/2022

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**Additional information:** Elevated temperature information for transport, Temperatures above 100 °C / 100 °F, UN3257, Elevated temperature liquid, n.o.s., at or above 100°C (212°F), and below its flash point, 9, III, APPLIES ONLY DURING ROAD TRANSPORT, IATA - Substances Forbidden from Air Transport

**ICAO/IATA:**

**Proper shipping name:** This product is not regulated when shipped at room temperature.

**Hazard Class:** Not regulated

**Packing group:** None

**Additional information:** Elevated temperature information for transport, Temperatures above 100 °C / 100 °F, UN3257, Elevated temperature liquid, n.o.s., at or above 100°C (212°F), and below its flash point, 9, III, APPLIES ONLY DURING ROAD TRANSPORT, IATA - Substances Forbidden from Air Transport

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### 15. REGULATORY INFORMATION

*(not meant to be all inclusive - selective regulations represented)*

Regulatory requirements are subject to change and may differ between locations. It is the User's responsibility to ensure that all activities comply with all federal, state or provincial and local laws and regulations. The following specific information is made for the purpose of complying with numerous national, federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

**U.S. REGULATIONS**

**TSCA Inventory List:** Listed

**STATE REGULATIONS**

California Proposition 65: Not Listed

**INTERNATIONAL INVENTORIES**

Canada NDSL Inventory List: Listed

REACH/EU EINECS List: Listed

Japanese inventory (ENCS): Listed

Australian Industrial Chemicals Introduction Scheme (AICIS): Not Listed

Korean chemical inventory: Listed

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16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Label information: INGEO™ LACTIDE
Product code: M700

Reason for revision: Document Review

Revision Number: 6
Revision date: 06/21/2022
Print date: 06/21/2022

Recommended restrictions: None

Prepared by: NatureWorks LLC Health and Safety

NOTICE REGARDING APPLICATION RESTRICTIONS:
The company does not recommend any of its products, including samples, for use: (A) in any application which is intended for any internal contact with human body fluids or body tissues (B) as a critical component in any medical device that supports or sustains human life; and (C) specifically pregnant women or in any applications designed specifically to promote or interfere with human reproduction.

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