

Safety Data Sheet (Biopolymer)

The MSDS/SDS applies to the following products:

Part #	Description
=====	=====
118201 to 118214	Astek's Transform Trays Dentate & Edentulous

Section 1: Identification

Product Name : **Ingeo™ Biopolymer**

Synonyms : **3001D**

CAS Number : **N/A**

Product Use : A biopolymer which can be used for thermoformed, coating, injection molded, blow molded, and fiber applications.

Manufacturer/Supplier : **NatureWorks LLC**

Address : **15305 Minnetonka Blvd, Minnetonka, MN 55345 USA**

Information : **+1 (800) 664-6436** Emergency : **+1 (651) 632-9273 / (703) 527-3887**

Section 2: Hazard(s) Identification

Hazards : If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form. See Section 7 and 8 for additional information.

Section 3: Composition/Information on Ingredients

<u>Component</u>	<u>CAS-No.</u>	<u>Weight %</u>	<u>OSHA Exposure Limits</u>	<u>ACGIH Exposure Limits</u>
Poly lactide Resin	9051-89-2	> 98	None	None

Section 4: First-Aid Measures

Skin contact : Adverse effects are not expected from accidental skin contact following occupational exposure. After contact with skin, wash immediately with plenty of water. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer. DO NOT attempt to remove hot polymer from skin or contaminated clothing as skin may be easily damaged. Call a physician immediately.

Inhalation : Move to fresh air. Call a physician immediately.

Ingestion : Drink water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician immediately.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Section 5: Fire-Fighting Measures

Autoignition temperature : 388 ° C

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

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.

Under fire conditions : Cool containers / tanks with water spray. Water mist may be used to cool closed containers. Fine dust dispersed in air may ignite. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

Section 6: Accidental Release Measures

Personal precautions : Use personal protective equipment. Avoid contact with skin and eyes. Avoid dust formation. Remove all sources of ignition. Sweep up to prevent slipping hazard.

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

Methods for cleaning up : Clean up promptly by scoop or vacuum. Sweep up and shovel into suitable containers for disposal.

Section 7: Handling and Storage

Safe handling advice : Use personal protective equipment. Avoid contact with skin and eyes. Low hazard for usual industrial or commercial handling. Workers should be protected from the possibility of contact with molten material during fabrication. Avoid dust formation. If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form.

Storage : Store at temperatures not exceeding 50°C/ 122°F. Keep cool. No special restrictions on storage with other products.

Section 8: Exposure Controls/Personal Protection

Engineering measures : Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide appropriate exhaust ventilation at places where dust is formed.

Exposure limits : None established. This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m³ for total dust and 5 mg/m³ for the respirable fraction. The American Conference of Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m³ for inhalable particulates and 3 mg/m³ for respirable particulates.

Eye protection : Safety glasses with side-shields. Goggles.

Skin and body protection : Impervious clothing.

Respiratory protection : Respirator must be worn if exposed to dust. Wear respirator with dust filter. Respiratory protection is needed if any of the exposure limits in Section 3 are exceeded. 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.

Hand protection : Preventive skin protection.

Hygiene measures : Avoid contact with skin, eyes and clothing.

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

Section 9: Physical and Chemical Properties

Appearance: Clear, translucent, opaque, pellets	Color: Clear, Translucent, Opaque
Odor: Sweet	Water solubility: Insoluble
Density: 1.25	Decomposition temperature: 482°F (250°C)
Melting point: 150-180°C (302- 356°F), Tg	Glass Transition Temperature: 55-60°C (131-140°F)
Autoignition temperature: 388°C	Physical state: Solid

Section 10: Stability and Reactivity

Reactivity : None expected under conditions of normal use.

Chemical stability : Stable under recommended storage conditions.

Conditions to avoid : Temperatures above 446F (230 °C). Avoid keeping resin molten for excessive periods of time at elevated temperatures. Prolonged exposure will cause polymer degradation.

Materials to avoid : Oxidizing agents, Strong bases.

Hazardous decomposition products : Burning produces obnoxious and toxic fumes, Aldehydes, Carbon monoxide (CO), carbon dioxide (CO₂).

Section 11: Toxicological Information

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

Acute toxicity : There were no target organ effects noted following ingestion or dermal exposure in animal studies.

Local effects : Product dust may be irritating to eyes, skin and respiratory system. Resin particles, like other inert materials, are mechanically irritating to eyes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Specific effects : May cause skin irritation and/or dermatitis. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Burning produces irritant fumes.

Long term toxicity : Did not cause skin allergic reactions in skin sensitization studies using guinea pigs.

Mutagenic effects : Not mutagenic in AMES Test.

Carcinogenic effects : None of the components of this product are listed as carcinogens by IARC, NTP, or OSHA.

Target organ effects : There were no target organ effects noted following ingestion or dermal exposure in animal studies.

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

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

Section 12: Ecological Information* (non-mandatory)

Ecotoxicity effects : EC50/72h/algae > 1100 mg/L

Persistence and degradability : Inherently biodegradable under industrial composting conditions.

Bioaccumulation : Not expected to bioconcentrate or bioaccumulate.

Section 13: Disposal Considerations* (non-mandatory)

Waste from residues / unused products : In accordance with local and national regulations. Should not be released into the environment. Do not contaminate ponds, waterways or ditches with chemical or used container. Contact manufacturer.

Contaminated packaging : Empty remaining contents. Do not re-use empty containers. Empty containers should be transported/delivered using a registered waste carrier to local recyclers for disposal.

Section 14: Transport Information* (non-mandatory)

U.S. Department of Transportation (DOT):

Proper shipping name: None
Hazard class: Not regulated.
Packing group: None
Hazardous substances (RQ): None

IMDG:

Proper shipping name: None
Hazard class: Not regulated.
UN/Id No.: None
Packing group: None

ICAO/IATA:

Proper shipping name: None
Hazard Class: Not regulated.
UN-No.: None
Packing group: None

Section 15: Regulatory Information* (non-mandatory)

U.S. REGULATIONS

Sara 313 title III: Not Listed
TSCA Inventory List: Listed

STATE REGULATIONS

California Proposition 65: Not Listed

INTERNATIONAL INVENTORIES

Canada DSL Inventory List : Listed

REACH/EU EINECS List : Components are in compliance with and/or are listed.

Japan (ECL) : Listed

Australia (AICS): Listed

Korean chemical inventory: Listed

Phillipines (PICCS) inventory: Contact NatureWorks for additional information.

China inventory of existing chemical substances list : Listed

Section 16: Other Information

Label information: Ingeo™ biopolymer

Product code: 3001D

Reason for revision: Updated information compliant with OSHA (GHS) standard

Revision Number: 20

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Recommended restrictions: None