

Product name:  
Ingeo™ biopolymer  
Product code:  
3D870

Revision Number: 6

Revision date:  
08/06/2020

Print date:  
08/21/2020

## SAFETY DATA SHEET

Regulation (EC) No. 1907/2006

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name: Ingeo™ biopolymer  
Product code: 3D870

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Product Use: A biopolymer to be used in 3D printing applications.

#### 1.3. Details of the supplier of the safety data sheet

Supplier:  
NatureWorks LLC, 15305 Minnetonka Blvd, Minnetonka, MN 55345 USA  
Customer Information Center: 800-664-6436  
sdsinquiry@natureworksllc.com  
952-562-3450

#### 1.4. Emergency telephone number

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)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Not classified

#### 2.2. Label elements

Signal word: None  
Hazard Statements: None required  
Precautionary Statements: None required

#### 2.3. Other hazards

No information available

### SECTION 3: Composition/information on ingredients

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Chemical name and CAS	Weight %
Poly lactide resin 9051-89-2	>85

**Other Standards:** See section 8 for more information

**Other Standards:** This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m<sup>3</sup> for total dust and 5 mg/m<sup>3</sup> for the respirable fraction. The American Conference of Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m<sup>3</sup> for inhalable particulates and 3 mg/m<sup>3</sup> for respirable particulates.

## SECTION 4: First aid measures

**Emergency telephone numbers (24 hours a day):**

- (Medical Information) +1-(651)-632-9273
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### 4.1. Description of first aid measures

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

**Skin contact:** Rinse immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician Cool skin rapidly with cold water after contact with hot polymer. Do not peel polymer from the skin. Consult a physician

**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

**Notes to physician:** Treat symptomatically

### 4.2. Most important symptoms and effects, both acute and delayed

No information available

### 4.3. Indication of any immediate medical attention and special treatment needed

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No information available

## SECTION 5: Firefighting measures

### **Flammability:**

Not determined

### **Flammability Limits in Air:**

**Flammable limits in air - lower (%):** Not applicable

**Flammable limits in air - upper (%):** Not applicable

### **5.1. Extinguishing media**

**Suitable extinguishing media:** Foam. Water. Carbon dioxide (CO<sub>2</sub>). Dry chemical. 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:** - None

### **5.2. Special hazards arising from the substance or mixture**

Burning produces obnoxious and toxic fumes Aldehydes, Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) Nitrogen oxides (NO<sub>x</sub>)

### **5.3. Advice for firefighters**

**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 Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air)

## SECTION 6: Accidental release measures

### **6.1. Personal precautions, protective equipment and emergency procedures**

**6.1.1. For non-emergency personnel**

**6.1.2. For emergency responders**

### **6.2. Environmental precautions**

- Do not flush into surface water or sanitary sewer system

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- Do not allow material to contaminate ground water system.

### 6.3. Methods and material for containment and cleaning up

- Shovel into suitable container for disposal.

### 6.4. Reference to other sections

- No information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Avoid contact with skin and eyes
- Workers should be protected from the possibility of contact with molten material during fabrication
- May form combustible dust concentrations in air if small particles are generated during further processing, handling or by other means
- Low hazard for usual industrial or commercial handling
- Use personal protective equipment as required

### 7.2. Conditions for safe storage, including any incompatibilities

- Store in a cool place.
- Keep at temperatures below 122F (50C).
- No special restrictions on storage with other products.

### 7.3. Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure limits:**

Not established. • This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m<sup>3</sup> for total dust and 5 mg/m<sup>3</sup> for the respirable fraction. The American Conference of Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m<sup>3</sup> for inhalable particulates and 3 mg/m<sup>3</sup> for respirable particulates.

**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.

### 8.2. Exposure controls

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

**Skin and body** Impervious clothing

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**protection:**

**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 listed in the control parameters 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

### 9.1. Information on basic physical and chemical properties

**Physical state:** Solid, Pellet  
**Appearance:** opaque, pellets.  
**Color:** Opaque, Light brown, Beige  
**Odor:** Sweet  
**pH:** Not applicable  
**Vapor pressure:** Not determined  
**Vapor density:** Not determined  
**Evaporation rate:** Not determined  
**Density:** Not determined  
**Boiling point / boiling range:** Not applicable  
**Autoignition temperature:** Not determined  
**Flammability:** Fine dust dispersed in air may ignite  
**Flammability Limits in Air:** No information available  
**Water solubility:** Insoluble  
**Solubility in other solvents:** None known  
**Solubility:** Not determined

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**Other Standards:** See section 8 for more information

## 9.2. Other information

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

None under normal use conditions

#### 10.2. Chemical stability

#### 10.3. Possibility of hazardous reactions

None under normal use conditions

#### 10.4. Conditions to avoid

Temperatures above 446F (230 °C).

#### 10.5. Incompatible materials

Oxidizing agents  
Strong bases

#### 10.6. Hazardous decomposition products

Burning produces obnoxious and toxic fumes  
Aldehydes, Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)  
Nitrogen oxides (NO<sub>x</sub>)

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

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

**Acute toxicity:** Not determined

**Local effects:** May cause eye/skin irritation. Product dust may be irritating to eyes, skin and respiratory system 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

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produces irritant fumes.

**Mutagenic effects:** No data is available on the product itself.

**Reproductive toxicity:** No data is available on the product itself.

**Carcinogenic effects:** No data is available on the product itself.

**Target organ effects:** Not determined

**Ingestion:** No data is available on the product itself

**Further information:** No information available

## SECTION 12: Ecological information

### 12.1. Toxicity

No data available

### 12.2. Persistence and degradability

No data available

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

### 12.6. Other adverse effects

No information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

In compliance with the requirements of Directive 2008/98/EC

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

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**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.

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.

## SECTION 14: Transport information

### 14.4. Packaging group

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance of mixture

- No information available

### 15.2. Chemical safety assessment

#### 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

**Sara 313 title III:** Not Listed

**TSCA Inventory List:** Listed

#### STATE REGULATIONS

#### INTERNATIONAL INVENTORIES

**Canada DSL Inventory List :** Listed

**Japanese inventory (ENCS):** Listed

**Australia (AICS):** Listed

**Korean chemical inventory:** Listed

**Taiwan Chemical Substance inventory (TCSI):** Listed

**China inventory of existing chemical substances list :** Listed

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## SECTION 16: Other information

**Label information:** Ingeo™ biopolymer  
**Product code:** 3D870

**Reason for revision:** Document Review

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**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. Components of products intended for human or animal consumption.

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