



Advanced BioCarbon 3D

Sustainable **advanced** materials

Date 7th Dec 2023

MATERIAL SAFETY DATA SHEET

Version 1.1

1. IDENTIFICATION

Product name: Polylactide , Polylactic Acid (PLA)

Product Use: Thermal processing for 3D printing in Layer Plastic Deposition (LPD) technology.

Supplier:

Advanced BioCarbon

Victoria BC Canada

Phone +1 250 544 5377

2. HAZARDS IDENTIFICATION

Material type: Thermoplastic

The product is not classified as dangerous according to Regulation (EC) No 1272/2008.

Colour: As displayed on the product label

Physical state: Solid

Odour: Sweet

3. COMPOSITION/INFORMATION ON INGREDIENTS

Polylactide or Polylactic Acid (PLA) – 96% CAS: 9051-89-2

Additives and colourants – 0 ~ 4%

4. 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.

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.

5. FIRE FIGHTING MEASURES

Auto ignition temperature: 388C

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.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. See Section 8. Remove all sources of ignition. Avoid contact with skin and eyes. 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: Place into suitable container for disposal.

7. HANDLING AND STORAGE

Safe handling advice: Handle in accordance with general safety regulations. Use personal protective equipment. Ensure proper ventilation. Avoid contact with molten material. Do not eat, drink or smoke when using the product. Do not ingest.

Storage: Store in tightly closed packaging in a dry and cool room away from hot surfaces and sources of ignition. Protect from moisture and direct sunlight. Keep at temperatures below 122F (50 °C). No special restrictions on storage with other products.

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.

Control parameters: None

PERSONAL PROTECTIVE EQUIPMENT: 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. Hand protection: Preventive skin protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, translucent, opaque, strand/string.

Colour: As displayed on the product label

Physical state: Solid

Odor: Sweet

pH: Not applicable

Density: 1,24 g/cm³

Decomposition temperature: 482F (250C)

Water solubility: Insoluble

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions

Conditions to avoid: Temperatures above 446F (230 °C).

Materials to avoid: Oxidizing agents. Strong bases.

Hazardous decomposition products: Burning produces obnoxious and toxic fumes.

Aldehydes. Carbon monoxide (CO). Carbon dioxide (CO₂).

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion.

Acute toxicity: N/A

Local effects: May cause eye/skin irritation. Product dust may be irritating to eyes, skin and respiratory system. Caused mild to moderate conjunctival irritation in eye irritation studies using rabbits. Caused very mild redness in dermal irritation studies using rabbits (slightly irritating). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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

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.

Mutagenic effects: Not mutagenic in AMES Test.

12. ECOLOGICAL INFORMATION

Mobility: No data available

Bioaccumulation: Does not bio accumulate. Inherently biodegradable.

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

13. DISPOSAL CONSIDERATIONS

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.

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.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT): Proper shipping name: Not regulated as a hazardous material.

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. Packing group: None.

15. REGULATORY INFORMATION

U.S. REGULATIONS: Sara 313 title III: Not listed TSCA Inventory List – Not listed

STATE REGULATIONS: California Proposition 65 Not listed

INTERNATIONAL INVENTORIES: Canada DSL Inventory List: Not listed. REACH/EU EINECS List: Components are in compliance with and/or are listed. Japan (ECL): Not listed. Australia (AICS): Not listed. Korean chemical inventory: Not listed. Philippines (PICCS) inventory: Not listed. China inventory of existing chemical substances list: No listed.

16. OTHER INFORMATION

This Safety Data Sheet has been prepared on the basis of the currently available data on the product as well as of the Manufacturer's experience and knowledge. It should be treated as a guide for safe transportation, storage and handling. The given information is not to be considered as a warranty or quality specification. Additionally, it is the user's responsibility to handle the product in accordance with local regulations and standards.