

Product name: PLACTIVE™

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SAFETY DATA SHEET

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

Product name: PLACTIVE™

Product Use: A biopolymer plus additive based on copper zeolites which can be used for 3D Printer Filament for Material Extrusion

Supplier: Copper3D Inc.

Information mail: contact@copper3d.com

2. HAZARDS IDENTIFICATION

Hazard Statement: None

Precautionary Statement: None

Signal word: None

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Pictogram: None

Potential health effects: See Section 11 for more information

Environmental precautions: See Section 12 for more information

Other Hazards: See Section 7 and 8 for additional information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	Weight %	OSHA Exposure Limits:	ACGIH Exposure Limits:
Poly lactide resin 9051-89-2	>99	None	None
NanoCu PCZ001 (Zeolite 4A: 75% Copper Hydroxyacetate: 25%)	< 1	None	None

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

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/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.

4. FIRST AID MEASURES

Eye contact: Immediately rinse the eye with plenty of clean running water for at least 15 minutes. Remove contact lenses, if present and easy to do. Rinse thoroughly the inner side of the eye lid. Get medical attention as soon as possible.

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Skin contact: In case of contact with **melted material**, fully cool down by pouring plenty of water over the clothing. Then take off clothing, cover with clean gauze and get medical attention immediately. Get medical attention if appearance changes, irritating pain occurs or feeling unwell.

Inhalation: If you feel unwell by inhalation of vapor or gas, move to fresh air and keep at rest in a position comfortable for breathing. Call a doctor if you feel unwell.

Ingestion: If swallowed by accident, keep at rest and get medical attention immediately. Avoid vomit entering into respiratory tract. Do not induce vomiting unless instructed by a doctor.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammability:

Autoignition temperature: 388°C

Flammability Limits in Air:

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

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

General fire hazards: No unusual fire or explosion hazards noted.

Extinguishing media:

Suitable extinguishing media: Water fog. Foam, dry chemical powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture: During fire, hazardous gases may be formed

Special protective equipment for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire

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ANTIBACTERIAL INNOVATIONS

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials

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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

No measures required.

Methods and Materials for Containment and Cleaning Up

Collect spilled material in appropriate container for reuse or disposal. Dispose in accordance with all applicable regulations.

Environmental Precautions Avoid release to the environment.

Comply with all applicable regulations on spill and release reporting. Prevent entry into waterways, sewers, basements, or confined areas.

7. HANDLING AND STORAGE

Precautions for safe handling: Handle in a well-ventilated area. Installation of local exhaust at 3D printers area is recommended when many printers are operated at once. Keep away from fire (ignition source) and store at ambient temperature.

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ANTIBACTERIAL INNOVATIONS

Storage: Protect from water, moisture and direct sunlight and store indoors at ambient temperature and well-ventilated. No special restrictions on storage with other products.

Precautions: No special precautions required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

No exposure limits noted for ingredient(s)

Biological limit values

No biological exposure limits noted for the ingredient(s)

Recommended monitoring procedures

Follow the standard monitoring procedures

Engineering Controls

Provide local exhaust ventilation system. Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

None during normal use. Protect against molten solid.

Skin Protection

None during normal use. Protect against molten solid.

Respiratory Protection

No respirator is required under normal conditions of use. If respirable dusts are generated, respiratory protection may be needed.

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ANTIBACTERIAL INNOVATIONS

Glove Recommendations

Protect against molten solid. In the molten form: Wear protective gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance physical state: Filament Shape

Color: Red, Blue and Green.

Odor: Characteristic

Melting point / melting range: 200 -230°C (392- 446°F)

Autoignition temperature: 388°C

Combustibility: Flammable when exposed to any ignition source

Water solubility: Insoluble

Solubility in other solvents: Not determined

10. STABILITY AND REACTIVITY

Reactivity: None expected under conditions of normal use. The product is stable and non-reactive under normal conditions of use, storage and transport

Chemical stability: Stable under recommended storage conditions.

Conditions to avoid: Exposing to direct ignition sources.

Materials to avoid: Oxidizing agents, Strong bases

Hazardous decomposition products: It decomposes at high temperature heating and thereby may generate hazardous gas (e.g. Carbon Hydride or Aldehydes).

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ANTIBACTERIAL INNOVATIONS

Incompatible materials: No data available.

Self reactivity: None

11. TOXICOLOGICAL INFORMATION

General information: Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure:

Inhalation: No adverse effects due to inhalation are expected.

Skin contact: Molten material may cause burns.

Eye contact: Direct contact with eyes may cause temporary irritation. Molten material may cause burns.

Ingestion: May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Information on toxicological effects

Immediate Effects: Molten material may cause thermal burns.

Delayed Effects: No information on significant adverse effects.

Mutagenic effects: Not mutagenic in AMES Test.

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

Carcinogenic effects: classification is not possible

Target organ effects: classification is not possible

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12. ECOLOGICAL INFORMATION

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

Persistence and degradability: Inherently biodegradable under industrial composting conditions.

Bioaccumulation: Not expected to bioconcentrate or bioaccumulate.

Mobility: No data available.

13. DISPOSAL CONSIDERATIONS

Residual waste: Dispose of in accordance with local regulations

Disposal methods/ information: Do not dump into sewers, on the ground or into any body of water. Burn in an adequate incinerator or bury in landfill in accordance with applicable regulations.

Special precautions: Dispose in accordance with all applicable 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: None

Hazard class: Not regulated.

Packing group: None Hazardous substances (RQ): None

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ANTIBACTERIAL INNOVATIONS

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

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

Sara 313 title III: Not Listed

TSCA Inventory List: Listed

STATE REGULATIONS

California Proposition 65: Not Listed

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ANTIBACTERIAL INNOVATIONS

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

China inventory of existing chemical substances list: Listed

16. OTHER INFORMATION INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

Label information: PLACTIVE™

Recommended restrictions: None

Prepared by: Copper3D Inc.

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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