

SAFETY DATA SHEET

PHACT™ CB0104A

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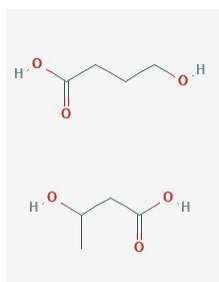
Section 1. Identification of the substance and the company/undertaking

1.1 Identification

Trade name CB0104A

CAS No. 125495-90-1

Chemical structure



Poly(3-hydroxybutyrate-co-4-hydroxybutyrate)

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

Relevant identified uses Applications requiring bio content and/or composting/biodegradability

1.3 Details of the supplier of the safety data sheet

Manufacturer CJ Biomaterials
19 Presidential Way; Suite 301. Woburn, MA 01801 USA

1.4 Emergency telephone number

82-31-8099-2323
+1 (339) 999-2693

Section 2. Hazard Identification

2.1 Hazards

Classification of the substance or mixture Flammability GHS Category 4-Slight hazard
Not considered a hazards substance or mixture

Not considered hazardous according to OSHA
Not considered hazardous according to EC Directives
67/548EEC or 1999/45/EC and their valid adaptation and
derived national regulation

2.2 GHS label elements, including precautionary statements

GHS labeling	Not relative as material is not a hazardous substance or mixture
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2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Will not ignite by friction

Slightly flammable if subjected to open flame (see sec. 16, additional information)

2.4 Hazards not otherwise classified (HNOC) or not covered by GHS

Eye	May cause eye irritation
Skin	May cause skin irritation. Under normal processing conditions at elevated temperature, contact with molten material can cause thermal burns
Ingestion	May be harmful if swallowed
Inhalation	Dust from processing may cause irritation of the respiratory system

Section 3. Composition/Information on ingredients

3.1 Substances

Polyhydroxyalkanoate (P3HB4HB) CAS# 125495-90-1

Section 4. First Aid Measures

4.1 First Aid Measures

Eye	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid
Skin	Wash off with soap and water.
Ingestion	Get medical aid immediately. Do not induce vomiting without medical advice.

Inhalation

Heating resin above the recommended processing range, or 220 °C will produce toxic fumes. Remove the victim from exposure area to fresh air immediately. Give oxygen if breathing is difficult. Get medical aid. Give artificial respiration if not breathing.

4.2 Notes to physician**Notes to physician**

Treat symptomatically.

Section 5. Firefighting Measures**5.1 Firefighting measures**

Suitable extinguishing media	Use water spray, dry chemical, carbon dioxide, or chemical foam.
Flash Point	Not determined
Auto-ignition Temp.	Not determined
Hazardous Combustion Product	Carbon dioxide, carbon monoxide
Special Protective Actions for fire-fighters	Wear a self-contained breathing apparatus in pressure-demand mode, MSHA/NIOSH (approved or equivalent), and full protective gear

Section 6. Accidental release measures**6.1 Non-emergency personnel**

Use personal protective equipment as indicated in Section 8.
Ventilate area

6.2 Spills/Leaks

Sweep up pellets. Vacuum fines, or dusts, using a combustible-dust vacuum

6.3 For emergency responders

Some as above for non-emergency personals

Section 7. Handling and Storage**7.1 Handling**

Good industrial practices in housekeeping and personal hygiene should be followed. Minimize dust. Maintain

operating temperature within the recommended processing range. Avoid contact with molten material and provide adequate ventilation during processing. When mechanical energy is used to process, or transfer, the materials, fines or dust can be generated. Systems and procedures should be designed to minimize the generation and accumulation of dust from the handling and processing of a mixed resin of PHA and PLA. Refer to NFPA pamphlet 654: Standard for the Prevention of Fire and Dust Explosions from the manufacturing, processing, handling of Combustible Particulate Solids.

7.2 Storage

A mixed resin of PHA and PLA has good storage stability, but extremes of temperature and humidity should be avoided to prevent property deterioration. The recommended maximum shelf life is two years. Resin should be stored in original shipping package. Keep the resin dry and sealed to exclude moisture. Store below 27 °C (80 °F) to maximize product shelf life.

Section 8. Protection in the workplace

8.1 Control parameters

OSHA Vacated PELs

OSHA Vacated PELs

Engineering controls

Provided good general ventilation with additional local ventilation where the hot polymer may reside for long periods (leak areas, above the nozzle or die, in screen changers, in vent ports, etc.). Heating resin above recommended processing conditions or 220 °C will produce toxic fumes.

8.2 Personal protective equipment

Eyes

Wear appropriate protective eyeglasses described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin

Hot polymers can cause thermal burns. Wear impervious clothing and insulated gloves where exposure to molten polymer is possible.

Respirators

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if there is potential for exposure to dust or toxic fumes, or if irritation or other symptoms are experienced.

Section 9. Physical and chemical properties**9.1 Information of physical and chemical properties**

Appearance	Off-white solid pellets
Odor	Mild
pH	Not applicable
Melting Point	100 – 190 °C (212 – 374 °F)
Freezing Point	Not applicable
Boiling Point	Not applicable
Flash Point	265 °C.
Evaporation Rate	Not determined
Vapor Pressure	Not determined
Vapor Density	Not determined
Viscosity	Not available
Flammability	Not available
Upper/lower flammability or explosive limits	(min. explosible concentration) 160 g/m ³
Density	1.1 - 1.3 g/cm ³
Solubility	Soluble in chloroform, methylene chloride
Partition coefficient	Not determined
Auto-ignition Temperature	Not determined
Decomposition Temperature	> 220 °C (428 °F)
Viscosity	Not applicable-solid
Molecular Weight	Approximately >100,000 (by GPC)

Section 10. Stability and reactivity

10.1 Reactivity

not known to be reactive

10.2 Chemical Stability

stable under recommended storage conditions.

See section 7

10.3 Possibility of Hazardous Reaction

Hazardous polymerization will not occur

10.4 Conditions to Avoid

incompatible materials, excess heat, flames, ignition sources

10.5 Incompatible materials

strong oxidizing agents, strong acids

10.6 Hazardous Decomposition

carbon monoxide, carbon dioxide, crotonic acid

Section 11. Physical and chemical properties**11.1 Information of physical and chemical properties**

Acute toxicity (oral)	No information available.
Acute toxicity (dermal)	Category 5
Acute toxicity (inhalation)	No information available.
Skin Corrosion/irritation	Classified as a mild sensitizer for skin
Serious eye damage/irritation	Not classified
Respiratory or Skin sensitization	No information available
Mutagenicity	Negative on in vitro bacterial reverse mutation, Negative on in vitro mammalian gene mutation Negative on in vivo chromosome aberration
Carcinogenicity	No information available
Reproductive toxicity	No information available.
STOT-single exposure	: No information available
STOT-repeated exposure	: No information available

Aspiration hazard

Section 12. Ecological information

12.1 Ecological Toxicity

Not considered toxic in marine, fresh water, soil environment.

12.2 Persistence, degradability and bio-based products

Product will biodegrade in industrial and home compost conditions

12.3 Bioaccumulation

Not expected to bioconcentrate or bioaccumulate

12.4 Mobility in soil

No data available

12.5 Other adverse effects

No information available

Section 13. Disposable considerations

13.1 Disposal methods

Waste from residues / unused products: In accordance with local and national Regulations. Product is bio-based, non-hazardous and compostable.

Should not be released into the environment

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

14.1 U.S. Department of Transportation (DOT)

Proper shipping name	None
Hazard class	Not regulated
UN-No	None
Packaging group	None
Hazardous Substances RQs	None

14.2 IMDG

Proper shipping name	None
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Hazard class	Not regulated
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UN/Id No.	None
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Packing group	None
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14.3 ICAO/IATA

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

15.1 US regulations

TSCA List	Listed
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California Proposition 65	Not Listed
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15.2 EU regulations

EU Reach	Exemption
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15.3 China regulations

IECSC	Listed
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GB4806.6-2016	Listed
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15.4 Japan regulations

Japan regulations	Listed
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15.5 Korea regulations

Korea REACH	Exemption
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15.6 Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List

15.7 Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule

15.8 Section 12b

None of the chemicals are listed under TSCA Section 12b

15.9 Section 313

No chemicals are reportable under Section 313

15.10 Clean Air Act

This material does not contain any hazardous air pollutions

15.11 Clean Water Act

None of the chemicals in this product are listed as Hazardous Substance under the CWA

None of the chemicals in this product are listed as Priority Pollutants under the CWA

None of the chemicals in this product are listed as Toxic Pollutants under the CWA

15.12 OSHA

None of the chemicals in this product are considered highly hazardous by OSHA

15.13 California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

15.14 European Union

Not considered hazardous according to EC Directives 67/548/EEC or 1999/45/EC and their valid adaptations and derived national regulations

European labeling in Accordance with EC Directives

15.15 Canadian Regulations

Canada -DSL

CAS# 125495-90-1

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

Canada -NDSL

CAS# 9051-89-2

Substances on the list still require notification under the New Substances Notification Regulations (Chemicals and Polymers) so that health and ecological risks can be assessed before the substance is manufactured or imported into Canada above threshold quantities, however they are subject to fewer information requirements and higher thresholds for reporting.

Section 16. Other Information

16.1 Additional Information

Product Name	PHACT CB0104A
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HMIS Classification (estimated)

Health hazard	0
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Physical hazards	0
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NFPA Rating (estimated)

Health hazard	0
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Fire	1
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Reactivity	0
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NOTICE

Customer assumes all risk with respect to its use and handling of this resin and its marketing, sale and use of products made with CJ BIOMATERIALS (CJ CHEILJEDANG) biopolymers. CJ CHEILJEDANG liability for breach of warranty, negligence, or other claims is limited to the purchase price of materials purchased. CJ CHEILJEDANG will not be responsible for any indirect, consequential, special, or incidental damages. The information contained herein is believed to be reliable, but CJ CHEILJEDANG makes NO REPRESENTATIONS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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