

PHB Pellets

Version No:1.0
Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

SDS201803071130

Issue Date:07/03/2018

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

Product name: PHB Pellets
Chemical Name: Poly-β-hydroxybutyrate (PHB)
Synonyms: Not Available

Other means of identification: Product code: ENMAT Y3000P

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

Relevant identified uses: A thermoplastic polyester with a variety of uses.
Uses advised against: Not Applicable

1.3. Details of the supplier of the safety data sheet

Supplier name	Ningbo Tianan Biologic Material Co., Ltd
Address	No.68, Dagang Road, Beilun District, Ningbo City, Zhejiang Province,China.
Telephone	+86-574-86895240
Emergency telephone	+86-13336636366
Email	elissa@tianan-enmat.com

1.4. Emergency telephone number

Association / Organisation	
Emergency telephone numbers	
Other emergency telephone numbers	

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP]	Not Classified
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2.2. Label elements

Hazard pictogram(s)

Not Applicable

SIGNAL WORD: NOT APPLICABLE

Hazard statement(s)

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

2.3. Other hazards

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances

1.CAS No 2.EC No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
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Continued...

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3.Index No			
26744-04-7		Poly- β -hydroxybutyrate (PHB)	Not Classified
	>98	3-hydroxybutanoic acid from cupriavidus necator fermentation of D- Glucose	

3.2.Mixtures

See 'Information on ingredients' in section 3.1

SECTION 4 FIRST AID MEASURES**4.1. Description of first aid measures****Eye Contact**

If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

Ingestion

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES**5.1. Extinguishing media**

- Foam.
- Dry chemical powder.

5.2. Special hazards arising from the substrate or mixture**Fire Incompatibility**

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters**Fire Fighting**

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.

Fire/Explosion Hazard

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).

Combustion products include:

- carbon monoxide (CO)
- carbon dioxide (CO₂)
- other pyrolysis products typical of burning organic material.

SECTION 6 ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

See section 8

6.2. Environmental precautions

Continued...

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See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills

- Clean up all spills immediately.
- Avoid contact with skin and eyes.

Major Spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)
- Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.

Fire and explosion protection

See section 5

Other information

- Store in original containers.
- Keep containers securely sealed.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container

- Lined metal can, lined metal pail/ can.
- Plastic pail.

Storage incompatibility

- Avoid contamination of water, foodstuffs, feed or seed.
- Avoid reaction with oxidising agents

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Derived No Effect Level (DNEL)

Not Available

Predicted No Effect Level (PNEC)

Not Available

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

8.2.2. Personal protection



Eye and face protection

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection

See Hand protection below

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Hands/feet protection

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene.

Body protection

See Other protection below

Other protection

No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.

Thermal hazards

Not Available

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance: Off-white to beige

Physical state	Solid	Relative density (Water = 1)	1.25g/ml
Odour	Odorless to slightly sourish	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	175	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Flammable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Insoluble	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY**10.1.Reactivity:**

See section 7.2

10.2. Chemical stability:

Product is considered stable and hazardous polymerisation will not occur.

10.3. Possibility of hazardous reactions:

See section 7.2

10.4. Conditions to avoid:

See section 7.2

10.5. Incompatible materials:

See section 7.2

10.6. Hazardous decomposition products:

See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects**

PHB Pellets	TOXICITY	IRRITATION
	Not Available	Not Available

SECTION 12 ECOLOGICAL INFORMATION

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12.1. Toxicity

PHB Pellets	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE
	Not Available	Not Available	Not Available	Not Available

12.2. Persistence and degradability

No Data available for all ingredients

12.3. Bioaccumulative potential

No Data available for all ingredients

12.4. Mobility in soil

No Data available for all ingredients

12.5. Results of PBT and vPvB assessment

Not Available

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods****Product / Packaging disposal**

- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.

Waste treatment options

Not Available

Sewage disposal options

Not Available

SECTION 14 TRANSPORT INFORMATION**Labels Required****Marine Pollutant**

NO

HAZCHEM

Not Applicable

	Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
UN number: Not Applicable				
UN proper shipping name: Not Applicable	Environmental hazard: Not Applicable	Environmental hazard: Not Applicable	Environmental hazard: Not Applicable	Environmental hazard: Not Applicable
Transport hazard class(es): Not Applicable	Hazard identification (Kemler): Not Applicable	ERG Code: Not Applicable	EMS Number: Not Applicable	Classification code: Not Applicable
Subrisk: Not Applicable	Classification code: Not Applicable	Special provisions: Not Applicable	Special provisions: Not Applicable	Special provisions: Not Applicable
Packing group: Not Applicable	Hazard Label: Not Applicable	Cargo Only Packing Instructions: Not Applicable	Limited Quantities: Not Applicable	Limited quantity: Not Applicable
	Special provisions: Not Applicable	Cargo Only Maximum Qty / Pack: Not Applicable		Equipment required: Not Applicable
	Limited quantity: Not Applicable	Passenger and Cargo Packing Instructions: Not Applicable		Fire cones number: Not Applicable
		Passenger and Cargo Maximum Qty / Pack: Not Applicable		
		Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable		
		Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable		

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SECTION 15 REGULATORY INFORMATION**15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture**

Poly- β -hydroxybutyrate-co- β -hydroxyvalerate (PHBV) (80181-31-3) is found on the following regulatory lists

- Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

SECTION 16 OTHER INFORMATION**Full text Risk and Hazard codes****Other information**

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
PC – STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index