

## **BioGeo BSB-002R biodegradable & compostable resin**

Issue date: February 2020

### **GRADE**

Film grade

### **GENERAL DESCRIPTION**

BioGeo BSB-002R recycled resin film grade is a range of biodegradable film grades. It is based on a varying ratio between native potato starch, biodegradable polyester, and other additives.

### **GREEN CARBON CONTENT**

**BioGeo BSB-002R** is a compostable and certified EN13432 product with a Green Carbon content of 50%.

### **PRODUCT SPECIFICATION**

| Criteria                                   | Typical value               | Method                  |
|--|-----------------------------|-------------------------|
| Melt Flow rate (g/10 min)                  | 8-16                        | ISO 1133 (130°C, 10 kg) |
| Melt Volume rate (cm <sup>3</sup> /10 min) | 6-14                        | ISO 1133 (130°C, 10 kg) |
| Moisture content (%)                       | 5-10                        | UB 001                  |
| Density (g/cm <sup>3</sup> )               | 1.315                       | ISO 1183-1              |
| Tensile strength (Mpa)                     | 10-30                       | ISO 527-3               |
| Elongation (%)                             | 100-500                     | ISO 527-3               |
| E-modulus (MPa)                            | 100-400                     | ISO 527-3               |
| Chemical/Microbial                         | Non-toxic                   |                         |
| Appearance                                 | Haze: 4-20% ; Gloss: 60-80% |                         |
| Texture                                    | Soft to paper like          |                         |

\* results upon tests performed on films with thickness between 15 and 50  $\mu$ m

### **PACKAGING AND STORAGE**

BioGeo BSB-002R recycled resin is supplied in the form of granules in carton box of 750 Kg with liner. Temperatures during transportation and storage may not exceed 50 °C at any time. It is recommended to store the BSB-002R in the original container, sealed and under cool, shaded and dry storage conditions. During the storage the product can take humidity so is recommended to be used promptly after opened. Is recommended to use in the period of 18-24 months after delivery.

### **COMPOSTABILITY**

The resin is in compliance with the EN-13432 standard. It comes from post industrial film that has been certified as compostable by TÜV AUSTRIA (OK COMPOST S0555) and by DIN CERTCO for Home and Garden Composting (9R003), Compostable material for industrial composting (9K0041) and Compostable intermediates for industrial composting (9L0016) as well as compostable intermediate (Seedling 7W0048) and compostable intermediate (Seedling 7H0010). The recycled resin BSB-002R has been tested for biodegradability according to the standards EN-13432 with positive

results. As the compostability of the end-product is also dependent on the geometry of the product, it is the responsibility of the manufacturer of the end product to ensure the compliance with the regulations.

## FILM BLOWING INSTRUCTIONS

### General Information

Safety precautions:

- o Do not exceed temperatures of 150°C
- o Process with adequate ventilation

Equipment specifications:

- o Mono or COEX LDPE extrusion line with L/LD > 25
- o Die gap: 0.8-1.2mm
- o Compression ratio: 3:1
- o Dual-lip ring with IBC and chilled air
- o Blow-up ratio: 1:3 to 1:7

Interruptions + shut down:

- o During processing: No time limit for interruption
- o Post overnight: Just heat-up to processing temperatures

### Purging/switch-over procedure

| Process Step   | Purging   | Cool down | Material change   | Production  |
|----------------|---|-----------|---|---|
| Temperatures   | 200-180°C   | →         | 140-130°C   | 130-120°C   |
| Key activities | <ul style="list-style-type: none"> <li>- Purge equipment using LDPE with MFI of 2 to 4, and 5-8 with a low melting temperature (~100 °C)</li> <li>- Once throughput looks homogenous, renew filters/screens (ideally remove them)</li> <li>Then start with cool-down process (ensuring that the machine is running slowly)</li> </ul> | →         | <ul style="list-style-type: none"> <li>- Once temperature reaches 140°C (or below) switch from LDPE to BSB-002R</li> <li>- Increase / Decrease screw speed (disco purging) to accelerate switch-over (Note: LDPE and BSB-002R grade will mix)</li> <li>- Continue cool down to processing temperatures</li> </ul> | <ul style="list-style-type: none"> <li>- Add for the start-up phase (15.-30min) up to 3% slip additive (e.g. BASF SL05)</li> <li>- Run air ring and IBC at maximum capacity to prevent stickiness</li> <li>- If fish-eyes: Reduce temperatures and/or increase cooling; If material looks like paper: Reduce temperatures; If PE contamination: Increase temperature</li> </ul> |

**The following extrusion temperatures are recommended:**

Zone 1 - 120°C

Zone 2 - 120°C

Zone 3 - 120°C

Zone 4 - 120°C

Transition - 120°C

Die Head - 120°C

Die lip - 115°C

## APPLICATION

BioGeo BSB-002R is a recycled compostable and degradable resin suitable for film blowing applications and is specially developed for carrier bags, can be mixed with virgin compound to improve physical and chemical characteristics of the final product.

Typical Applications:

- Shopping bags
- Garbage bags
- Vegetable bags
- Flexible packaging

## FOOD REGULATORY STATUS

BioGeo BSB-002R recycled resin is not certified for food contact application. For any food contact certification the customers need to apply to the local institutions in accordance to local regulation.



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