



Beograde EXT052

Material Technical Data Sheet



Date of issue: 18/01/2023 Version: 3.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

| | |
|--------------|---|
| Product form | : Granulate |
| Name | : Beograde EXT052 |
| Product code | : 9802070052 |
| Application | : Extrusion |
| Composition | : 100% biodegradable compound and additives |

1.2. Details of the supplier of the material specification sheet

Manufacturer

Beologic
Jolainstraat 44
8554 Sint-Denijs
info@beologic.com

SECTION 2: Physical, mechanical and thermal properties

2.1. Information on basic physical, mechanical and thermal properties

| Properties ⁽¹⁾ | Method | Typical Value | Unit |
|--|------------|------------------------------|---------------------------|
| Physical | | | |
| Content | | Complex blend of biopolymers | |
| Physical state | | Solid | |
| Renewable content | | ≥ 56 | % |
| Relative density | ISO 1183-1 | 1,20-1,30 | g/cm ³ |
| MFI (190°C, 2,16 kg) | ISO 1133-1 | 7-8 | g/10min |
| Coloured in mass | | NO | |
| Transmission | | Opaque | |
| Colour material | | White | |
| UV package | | NO | |
| Carbon footprint ⁽²⁾ | PAS 2050 | 5,091* | kg CO ₂ Eq/ kg |
| Shelf life ⁽³⁾ | | 6 | Months |
| Mechanical | | | |
| Tensile modulus | ISO 527-1 | 1010 | MPa |
| Tensile strength | ISO 527-1 | 26 | MPa |
| Break stress | ISO 527-1 | 21 | MPa |
| Elongation at break | ISO 527-1 | 305 | % |
| Flexural modulus | ISO 178 | 1557 | MPa |
| Charpy impact strength (Notched 1eA , 23 °C) | ISO 179-1 | 72 | kJ/m ² |
| HDT (B) | ISO 75-1 | 52 | °C |
| Decomposition temperature (TGA) | ISO 3451-1 | 285 | °C |
| Ash content (TGA) | ISO 3451-1 | ≤10 | % |

(1) Typical properties; not to be construed as specifications.

(2) Carbon footprint calculated by Neutrologic

(3) Only if storage conditions (section 5) were followed

*Our Beograde grades are made carbon neutral by offsetting through certified climate projects.

Due to continuous variation of feedstock this figure reflects value of September 2022. Update latest carbon footprint available on request.

2.2. Product Carbon footprint

The product carbon footprint helps to define the amount of greenhouse gas emissions generated by a product along its life cycle, it quantifies the ghg-emissions related to the production of our products.

Neutrologic calculates the carbon footprint of all sales products and this from cradle to gate.

The calculation of the carbon footprint is in accordance with the internationally recognized Greenhouse Gas Protocol Product Standard which is based on the standard ISO-14067 norm and PAS2050.

The carbon footprint is mentioned in our datasheet - by offsetting or compensating the calculated emissions we can present our products as Carbon Neutral compounds. This compensation is according the Verified Carbon Standard – more info via (www.v-c-s.org).

2.3. Other information

No additional information available



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SECTION 3: Processing conditions – guidelines

| | | |
|------------------|-----------|----|
| Feed throat | 60 – 80 | °C |
| Feed temperature | 160 – 170 | °C |
| Compression zone | 170 – 180 | °C |
| Metering zone | 175 – 185 | °C |
| Die | 175 – 185 | °C |

If melt is too viscous, the temperatures can be increased stepwise by 5°C up to a maximum of 200°C melt temperature.

3.1 General comments

Discoloured surface and/or a burnt smell is a symptom of a too high temperature, too long residence time or uncontrolled friction heat. To counter that there is burning or damaging of the screw, barrel or tool, it's obliged to stop the machine only after it has been purged with cleaning compound. Gas formation or bubbles at the surface are a sign of insufficient degassing or a too high moisture content in the material of the co-extruder and/or main extruder.

Beograde is not compatible with a wide variety of other resins, and special purging sequences should be followed:

1. Before production, ensure to clean the extruder and bring temperature to steady state. with low viscosity, general purpose PP or PE.
2. Vacuum out hopper system to avoid contamination.
3. Introduce Beograde into the extruder at the operating conditions used in step one.
4. Once Beograde has purged, reduce barrel temperatures to desired set points.
5. At shutdown, purge machine with high viscosity polystyrene or polypropylene

Purging time: approximately 10 to 20 minutes.

At higher temperature, the dwell time of the material inside the machine shall be reduced to a minimum in order to lower the risk of degradation. Don't leave the material hot inside the machine for long periods as the material will degrade.

SECTION 4: Biodegradability and compostability

Composting of organic waste helps to divert organic waste from landfill or incineration. Composting is a biological process in which organic wastes are degraded by microorganisms into carbon dioxide, water and humus, a soil nutrient. **Beograde EXT052** PLA polymers are in compliance with the EN-13432 standard.

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

SECTION 5: Drying and storage conditions

Beograde EXT052 is a compound of biodegradable polymers (such as PLA). Residual moisture content can lead to hydrolysis degradation. We recommend drying Beograde EXT052 at maximum 70°C for a period of 2 hours to maximum 4 hours. Don't overheat or dry it longer than recommended. Residual moisture content (> 2.0%) can result in lower melt stability, surface mark or bubble formation during processing.

We recommend to store the material in dry conditions below 50°C and protected from UV-light. Opened (big)bags should be used immediately or adequately sealed back up after use to avoid moisture uptake and have negative effects on the physical properties of the product. It is recommended to use Beograde granules within a time period of maximum 6 months.

Finished product made from Beograde should be stored dry and cold. Storage time and lifetime of finished products depends on processing parameters and on storage conditions (moisture, UV radiation ...).