iBio

TECHNICAL DATA SHEET

Product name: BIOMP 2323
Processing: Injection molding, extrusion.

1. GENERAL INFORMATION

PRODUCT APPLICATION

BIOMP 2323 grade allows production of a wide range of products produced on conventional injection blow moulding processing machines, mainly preforms and bottles for dairy industry and different applications.

DESCRIPTION

This compound is a bio-based and compostable material designed for dairy packaging applications. It offers high clarity, good mechanical strength, and excellent processability. The compound provides a sustainable alternative to conventional PET and other synthetic polymers while maintaining food-contact safety and functional performance. Specifically, this compound presents a high percentage of biobased composition, since >91% of BIOMP 2323 is produced using renewable and eco-friendly sources, in this case biomass.

COLOR

White, opaque

2. CHEMICAL COMPOSITION

Bio-based compound with food-contact-approved materials.

3. PHYSICAL AND MECHANICAL PROPERTIES

Physical Properties	Value		Unit	Method
Density	1.21		g/cm^3	ISO 1183-1
Water content	<0.1		%	ISO 15512
Appearance	White, opaque		/	/
Mechanical properties	**Value**		**Unit**	**Method**
Tensile modulus	3100	2950	MPa	ISO 527-2/ISO 527-3
Tensile strength at yield	62	58	MPa	ISO 527-2/ISO 527-3
Elongation at break	10	14	%	ISO 527-2/ISO 527-3
Tensile stress at break	52	48	MPa	ISO 527-2/ISO 527-3
Flexural modulus	3300		Mpa	ISO 178
Unnotched charpy impact (23°C)	20		kJ/m^2	ISO 179-1
Moulding shrinkage, parallel	0,4-0,8		[%]	ISO 294-4
Moulding shrinkage, normal	0,3-0,7		[%]	ISO 294-4
Thermal properties	**Value**		**Unit**	**Method**
Melting temperature	157		[°C]	ISO 11357-3

Heat distortion temperature HDT 66 psi (0.45 MPa)	52-56	[°C]	ASTM D648*
Melt flow rate (190°C, 2.16kg)	5	[g/10 min]	ISO 1133
Melt volume rate (190 °C/2.16 kg)	4,0	[cm^3/10 min]	

*This standard has been adapted to be used in DMA equipment.
The values listed above have been established on standardized test specimens at standard temperature and humidity conditions, and figures are typical properties; not to be interpreted as specifications.

MOISTURE AND DRYING

BIOMP 2323 is a hygroscopic material. It absorbs moisture if kept unprotected. The product must be processed directly from the original moisture-tight packaging. Moisture content checking, additional drying time to get optimal processing moisture content, or crystallization step (before drying) are recommended, especially when the BIOWP 0125 pellets have been exposed to the atmosphere for long time periods. The moisture content in the processing should generally be ≤ 300ppm (0,03%). If the moisture content during the melting process is too high, damage and/ or decrease in certain properties can occur. The drying and crystallization conditions are presented in the table below:

Drying conditions		
Moisture uptake, max.	ppm	300
Recommended moisture to process	ppm	50-200
Drying temperature	°C	60-65
Drying time	h	4-6

Crystallization conditions		
Crystallization temperature	°C	100-110
Crystallization time	h	1-2

PROCESSING RECOMMENDATIONS

Injection:

BIOMP 2323 can be processed on conventional injection equipment. It is recommended to use a pre heated mould (80-90°C) so that the cooling step will be done gradually. The recommended temperature to inject the melted material is around 10-30°C above melting temperature, specifically the recommended range of temperatures is 165-195°C.

Recommendations for injection moulding applications	
Melt Temperature	165-195°C
Feed Throat	40°C
Feed Temperature	170-180°C
Mould	Recommended: 80-90°C Other: 20-25°C
Feed speed	80-100 cc/s*
Injection speed	70-90 cc/s*

ADDITIVATION

Our material can be mixed with other types of additives (such as inorganic ones). It should only be taken into account two aspects, the percentage of additive that is going to be added, and the matrix of the additive masterbatch. In general, additives are delivered in masterbatch form, so they have mixed previously with another polymeric matrix/base. In these cases, the recommended polymeric matrix is PLA.

DELIVERY FORMAT/ FORM SUPPLIED

Bulk density: 0,7 g/cm3

Standard pack: 20 kg/bag (vacuum-sealed)

STORAGE

Pellet packaging must be stored in dry conditions and be opened only immediately before the processing, thus ensuring that the dry pellet does not absorb room moisture. Original packaging must be sealed again and stay undamaged when not processed portions of material are left in it. However, when the packaging is reopened, it is recommended that BIOMP 2323 is dried as specified in section MOISTURE AND DRYING.

SAFETY DATA

The material is not a dangerous product as defined by EU Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures and not subject to transport regulations. Nevertheless, general safety, protection and hygiene rules for its handling should be followed.

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of annex II of REACH (European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals)

For further details please refer to or request the Material Safety Data Sheet (MSDS).

FURTHER INFORMATION

For further technical or commercial information please contact UAB Inorega via our website.