

## Core Trays Made from Regrind Material

*While westernex supports recycling plastic waste it is not suitable for use in manufacturing core trays for the following reasons elaborated below.*

### **Facts Not Opinions**

1. It is impossible to know where all the recycled material has been sourced from in any one batch but if one makes the assumption that much of the material is collected & processed from thin wall injection moulded containers then that presents a significant problem. This being the vast majority of Polypropylene used for manufacturing thin wall packaging such as take away, yoghurt and margarine containers is Homopolymer (an information sheet from one of the biggest suppliers in the world is attached). Whereas the material used for the manufacture of Impala Core Trays is a superior Nucleated Polypropylene Copolymer (again info sheet attached). There are several reasons why one uses a Nucleated Polypropylene Copolymer for core trays as per reference to the attachments it has an impact strength of 8.5 kJ/m<sup>2</sup> for a flow rate of only 20 g/10min (MFI) as opposed to Homopolymer with an impact strength of 2.2 kJ/m<sup>2</sup> nearly ¼ that of the copolymer at a flow rate of 60g/10min (MFI) very high flow which is fine for yoghurt containers but not for core trays due to the reduced impact strength for this grade.
2. It is also impossible to know how many times a polymer has been recycled which again is a problem as every time PP polymer is processed through a machine involving heat such as injection moulding the molecular weight drops Eg the long chain molecules breakdown this is the mechanism by which mechanical properties in a polymer are degraded through heat. UV exposure also results in a reduction in molecular weight with the same negative effect on mechanical properties so using reprocessed material that has already suffered a reduction in molecular weight through heat history means it starts with a disadvantage against a virgin material.
3. Black UV stabiliser – not actually accurate as UV stabiliser is a complex chemical compound designed to absorb & filter UV light – yes Black Master Batch does offer an element of UV protection this is true but it is not in itself a UV stabiliser it is a colour consisting of mainly carbon black which is the cheapest form of UV protection not a “Stabiliser”. It should therefore be borne in mind you cannot build back in physical properties into reprocessed material however much UV stabiliser or Black MB you add it does not reverse the reduction in molecular weight e.g. degraded physical properties.
4. Talc Filled PP compound which the Impala brand of core tray is made from is more expensive than non-Talc Filled. Only small amounts of Talc are used in the compound as it is a reinforcing filler while not degrading the mechanical properties it does provide increased stiffness & dimensional stability.
5. In conclusion regrind material is fine to use in products with a mass such as a 50mm x 50mm post but not a core tray that has thin channel walls that are subject to impact and will be exposed to the sun (UV) for many years.





## PRODUCT DATA SHEET

**POLYPROPYLENE****BorPure™ HJ311MO****POLYPROPYLENE HOMOPOLYMER FOR INJECTION MOULDING****DESCRIPTION**

**BorPure™ HJ311MO** is a high flow polypropylene homopolymer for thin wall packaging and products with high flow length. It is based on proprietary Borstar Nucleation Technology (BNT) combined with unique Borstar reactor design.

**BorPure™ HJ311MO** is designed for high speed injection moulding and contains antistatic additive.

This polymer is characterized by excellent organoleptic properties and efficient processing due to BNT nucleation and high flowability. Articles moulded from this product exhibit good dimensional stability and good stiffness / impact – balance.

**APPLICATIONS**

Takeaway food packaging  
Thin wall containers  
Media Packaging  
Rectangular and flat products, like lids and trays

**SPECIAL FEATURES**

High melt flow	Very fast processing
Excellent organoleptic performance	Good demoulding properties
Good stiffness/ impact - balance	Low warpage

**PHYSICAL PROPERTIES**

Property	Typical Value	Test Method
Density	900-910kg/m <sup>3</sup>	ISO 1183
Melt Flow Rate (230°C/2.16kg)	60g/10min	ISO 1133
Tensile Modulus (1mm/min)	1750MPa	ISO 527-2
Tensile Strain at Yield (50mm/min)	9%	ISO 527-2
Tensile Stress at Yield (50mm/min)	37MPa	ISO 527-2
Flexural Modulus	1750MPa	ISO 178
Flexural Modulus(by 1% secant)	1700MPa	ASTM D790A
Charpy Impact Strength, notched (23°C)	2,2kJ/m <sup>2</sup>	ISO 179/1eA
IZOD Impact Strength, notched (23°C)	23J/m	ASTM D256
Heat Deflection Temperature(0,45MPa)**	108°C	ISO 75-2
Vicat Softening Temperature(Method A)***	145°C	ISO 306
Hardness, Rockwell(R-scale)	108	ISO 2039-2

\*Data should not be used for specification work

\*\*Measured on injection moulded specimens acc. to ISO 1873-2

\*\*\* Measured on injection moulded specimens, conditioned at 23°C and 50% Rel. Hum.





### PROCESSING CONDITIONS

**BorPure™ HJ311MO** is easy to process with standard injection moulding machines.

Following parameters should be used as guidelines:

Melt temperature: 210 - 260°C  
Holding pressure: 200 - 500bar As required to avoid sink marks  
Mould temperature: 10 - 30°C  
Injection speed: As high as possible  
Shrinkage 1 - 2%, depending on wall thickness and moulding parameters

### STORAGE

**BorPure™ HJ311MO** should be stored in dry conditions at temperatures below 50°C and protected from UV-light. Improper storage can initiate degradation, which results in odour generation and colour changes and can have negative effects on the physical properties of this product.

More information on storage can be found in Safety Information Sheet (SIS) for this product

### SAFETY

The product is not classified as a hazardous preparation.

Please see our Safety Information Sheet (SIS) for details on various aspects of safety, recovery and disposal of the product, for more information contact your Borouge representative.

### RECYCLING

The product is suitable for recycling using modern methods of shredding and cleaning. In-house production waste should be kept clean to facilitate direct recycling.

### RELATED DOCUMENTS

The following related documents are available on request, and represent various aspects on the usability, safety, recovery and disposal of the product.

Safety Information Sheet  
Statement on chemicals, regulations and standards  
Statement on compliance to food contact regulations

### STANDARDS

Borouge is certified to various ISO standards, please refer to [Borouge.com](http://Borouge.com) for more information.





## PRODUCT DATA SHEET

# POLYPROPYLENE

## BF970MO

POLYPROPYLENE BLOCK COPOLYMER FOR INJECTION MOULDING

### DESCRIPTION

**BF970MO** is a heterophasic copolymer characterized by an optimum combination of very high stiffness and high impact strength.

This product uses Borstar Nucleation Technology (BNT) to increase productivity by cycle time reduction. BNT, in combination with excellent stiffness and good flow properties, creates a high potential for wall-thickness reduction.

Articles moulded with this product exhibit good antistatic performance and very good mould release. They have well-balanced mechanical properties and excellent dimension consistency with respect to different colors

### APPLICATIONS

Crates and boxes  
Technical parts

Pails  
Appliances

### SPECIAL FEATURES

High stiffness  
Good flow behaviour

High Impact strength  
Low warpage

### PHYSICAL PROPERTIES

Property	Typical Value	Test Method
Density	900-910kg/m <sup>3</sup>	ISO 1183
Melt Flow Rate (230°C/2.16kg)	20g/10min	ISO 1133
Tensile Modulus (1mm/min)	1500MPa	ISO 527-2
Tensile Strain at Yield (50mm/min)	5%	ISO 527-2
Tensile Stress at Yield (50mm/min)	27MPa	ISO 527-2
Flexural Modulus	1450MPa	ISO 178
Tensile Strain at Yield	5%	ASTM D638
Tensile Stress at Yield	27MPa	ASTM D638
Flexural Modulus(by 1% secant)	1400MPa	ASTM D790A
Charpy Impact Strength, notched (23°C)	9kJ/m <sup>2</sup>	ISO 179/1eA
Charpy Impact Strength, notched (-20°C)	4,5kJ/m <sup>2</sup>	ISO 179/1eA
IZOD Impact Strength, notched (23°C)	95J/m	ASTM D256
IZOD Impact Strength, notched (-20°C)	55J/m	ASTM D256
Heat Deflection Temperature(0,45MPa)**	102°C	ISO 75-2
Vicat Softening Temperature(Method A)***	149°C	ISO 306
Hardness, Rockwell(R-scale)	92	ISO 2039-2

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\*\*\* Measured on injection moulded specimens, conditioned at 23°C and 50% Rel. Hum.

### PROCESSING CONDITIONS



For more information, visit our website

[www.westernex.com.au](http://www.westernex.com.au)





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