

# Biocycle 189C-1

## Biodegradable Polymers

### Biocycle

#### Message:

Characteristics of the product:  
Yellowish white powder, with a high degree of purity of over 99.5% and humidity below 0.3%. Weight-average molecular weight of approximately 600,000 g/mol.

Basic Raw Material: Saccharose

Microorganism: Bacteria of the alcaligene genus

Obtention Process:  
Biosynthesis of the polymer by aerobic fermentation and extraction purification of the polymer through natural solvent.

Advantages:  
The polymer is totally biodegradable and renewable with its final decomposition in water and carbon dioxide through the action of microorganisms in natural environment; When placed in composting units, the polymer quickly decomposes and doesn't affect the quality of the compost produced. The polymer can be dyed by using biodegradable masterbatches in conventional dying processes. The polymer can be printed with paints and conventional printing processes, using surface treatment which are also conventional.

General Information			
Features	Biodegradable		
	Excellent Printability		
	High Purity		
	Paintable		
	Renewable Resource Content		
Uses	Agricultural Applications		
	Appliances		
	Automotive Applications		
	Handles		
	Packaging		
	Personal Care		
	Sporting Goods		
	Stationary Supplies		
	Toys		
	Wire & Cable Applications		
Appearance	Yellow		
Forms	Powder		
Processing Method	Injection Molding		
	Sheet Extrusion		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.30	g/cm <sup>3</sup>	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	15	g/10 min	ASTM D1238, ISO 1133

Mechanical	Nominal Value	Unit	Test Method
Tensile Stress			
Yield	30.0	MPa	ISO 527-2
--	30.0	MPa	ASTM D638
Tensile Elongation (Break)	2.2	%	ASTM D638, ISO 527-2
Flexural Modulus			
--	2600	MPa	ASTM D790
--	2650	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			
--	23	J/m	ASTM D256
--	21	kJ/m <sup>2</sup>	ISO 180/1A
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed	121	°C	ASTM D648
0.45 MPa, Unannealed	120	°C	ISO 75-2/B
1.8 MPa, Unannealed	70.0	°C	ASTM D648, ISO 75-2/A
Vicat Softening Temperature	135	°C	ASTM D1525, ISO 306/A120
Peak Melting Temperature	165 to 170	°C	ASTM D3418

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