Goodfellow PHB Biopolymer (PHB)

Biodegradable Polymers

Goodfellow Corporation

Message:

PHB and its copolymers with polyhydroxyvalerate (PHV) are melt-processable semi-crystalline thermoplastics made by biological fermentation from renewable carbohydrate feedstocks. They have been described as "the first example of a true thermoplastic from biotechnology" and are also biodegradeable. Although quite stable under everyday conditions they degrade slowly in the body and when composted or in landfill sites. [The HB monomer unit is a normal constituent of human blood.]
Their chemical resistance is somewhat limited as they are attacked by acids and alkalis and dissolve in chlorinated solvents. Rather remarkably, they are optically active polymers with a chiral site in each molecular repeat unit, all of which are in the D- (or R) configuration.
PHB homopolymer is a stiff and rather brittle polymer of high crystallinity, whose mechanical properties are not unlike those of polystyrene, though it is less brittle and more temperature resistant. Hence, copolymers are preferred for general purposes. It is believed that the most likely area for the application of homopolymer is in the medical/biological fields.
Chemical Resistance:
Acids - dilute Fair
Alcohols - Fair
Alkalis - Poor
Greases and Oils - Good
Resistance to Ultra-violet - Fair

General Information		
Features	Grease Resistant	
	Homopolymer	
	Medium Heat Resistance	
	Oil Resistant	
	Radiation (Gamma) Resistant	
	Renewable Resource Content	
	Semi Crystalline	
Uses	Medical/Healthcare Applications	
Forms	Fabric	
	Film	
	Granules	
	Rod	
	Sheet	
Processing Method	Injection Molding	
Physical	**Nominal Value**	**Unit**
Density	1.25	g/cm^3
Mechanical	**Nominal Value**	**Unit**
Tensile Modulus	3500	MPa
Tensile Strength (Yield)	40.0	MPa
Impact	**Nominal Value**	**Unit**
Notched Izod Impact	35 to 60	J/m
Thermal	**Nominal Value**	**Unit**

Continuous Use Temperature	95.0	°C
Electrical	**Nominal Value**	**Unit**
Volume Resistivity	1.0E+16	ohms·cm
Dielectric Strength (1e6)	0.12	kV/mm

Recommended distributors for this material

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