

## Biomer P209 PHB Biodegradable Polymer

Category : Polymer , Renewable/Recycled Polymer , Thermoplastic , Polyester, TP

### Material Notes:

PHB is a isotactic, absolutely linear, thermoplastic homopolyester built of 3-hydroxy butyric acid. The formula of the subunit is -[O-CH(CH<sub>3</sub>)-CH<sub>2</sub>-CO]-. PHB is free from even traces of catalysts. PHB is waterproof and is highly crystalline (60 to 70%), providing excellent resistance to solvents. PHB is a biopolymer which is present in all living organisms. Many bacteria produce PHB in large quantities as storage material (instead of fat, oil, or starch). It is not toxic and it is totally biodegradable. Biomer produces PHB and processes it to pellets that can be handled on plastics machines the same way as classic plastics produced from oil. PHB is a biological storage material that is used by bacteria and fungi as feed source. The same is true for articles made of Biomer resins: they act as food supply to microorganisms and thus are biodegraded. PHB serves as nutrient only, when phosphates, nitrogen, salts, humidity, and heat allow the microorganisms to grow. Such conditions are present in composts and, in part, in the soil, but not under the conditions of typical use of injection molded or extruded articles. Therefore articles made of PHB stay unharmed for years. Information provided by Biomer

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Biomer-P209-PHB-Biodegradable-Polymer.php](http://www.lookpolymers.com/polymer_Biomer-P209-PHB-Biodegradable-Polymer.php)

Physical Properties	Metric	English	Comments
Density	1.20 g/cc	0.0434 lb/in <sup>3</sup>	
Moisture Absorption at Equilibrium	0.75 %	0.75 %	
Linear Mold Shrinkage	0.013 cm/cm	0.013 in/in	
Melt Flow	17 - 20 g/10 min	17 - 20 g/10 min	
Deformation	4.7 %	4.7 %	at bending break

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	57	57	
Tensile Strength, Ultimate	15.0 - 20.0 MPa	2180 - 2900 psi	
Elongation at Break	11 - 18 %	11 - 18 %	
Modulus of Elasticity	0.900 - 1.20 GPa	131 - 174 ksi	
Flexural Strength	18.0 MPa	2610 psi	
Flexural Yield Strength	16.0 MPa	2320 psi	at 3.5%
Charpy Impact Unnotched	2.10 J/cm <sup>2</sup>	9.99 ft-lb/in <sup>2</sup>	
Charpy Impact, Notched	0.210 J/cm <sup>2</sup>	0.999 ft-lb/in <sup>2</sup>	

Thermal Properties	Metric	English	Comments
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Maximum Service Temperature, Air Thermal Properties	120 °C Metric	248 °F English	Comments
Vicat Softening Point	57.0 °C	135 °F	
Minimum Service Temperature, Air	-30.0 °C	-22.0 °F	

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