

Goodfellow Polyhydroxybutyrate / Polyhydroxyvalerate (PHB 92/PHV 8)

Category : Polymer , Renewable/Recycled Polymer , Thermoplastic

Material Notes:

See also PHB. PHB/PHV copolymers are used in preference to PHB homopolymer for general purposes (e.g. molding containers) in order to obtain a better balance of stiffness and toughness. PHV contents of 5 - 20% give a useful range of properties broadly similar to those of the polyolefins (the polyethylenes and polypropylene). They melt at lower temperatures than the homopolymer, giving a useful improvement in melt-processability. Their other properties are similar to those of PHB. They are being used for biodegradable containers (of which shampoo bottles are the most high-profile example) and other articles difficult to recycle e.g. disposable razors or medically contaminated articles. Information provided by Goodfellow.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Goodfellow-Polyhydroxybutyrate-Polyhydroxyvalerate-PHB-92PHV-8.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|---------------------------|----------|
| Density | 1.25 g/cc | 0.0452 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|------------------------------------|------------------|-----------------|----------------------|
| Film Tensile Strength at Yield, MD | 25.0 - 30.0 MPa | 3630 - 4350 psi | |
| Film Tensile Strength at Yield, TD | 25.0 - 30.0 MPa | 3630 - 4350 psi | |
| Tensile Strength, Yield | 28.0 MPa | 4060 psi | |
| Film Elongation at Break, MD | 7.0 - 15 % | 7.0 - 15 % | |
| Film Elongation at Break, TD | 5.0 - 10 % | 5.0 - 10 % | |
| Elongation at Break | 15 % | 15 % | |
| Tensile Modulus | 0.900 GPa | 131 ksi | |
| Secant Modulus, MD | 0.600 - 1.00 GPa | 87.0 - 145 ksi | Film |
| Secant Modulus, TD | 0.800 - 1.20 GPa | 116 - 174 ksi | Film |
| Izod Impact, Unnotched | 1.00 J/cm | 1.87 ft-lb/in | Notch Status Unknown |

| Thermal Properties | Metric | English | Comments |
|------------------------|-------------|------------------------------------|----------|
| Specific Heat Capacity | 1.40 J/g-°C | 0.335 BTU/lb-°F | |
| Thermal Conductivity | 0.150 W/m-K | 1.04 BTU-in/hr-ft ² -°F | |

| Electrical Properties | Metric | English | Comments |
|------------------------|-----------------|-----------------|----------|
| Electrical Resistivity | 1.00e+16 ohm-cm | 1.00e+16 ohm-cm | |

| Electrical Properties Dielectric Constant | Metric | English | Comments |
|--|--------------------|--------------------|----------|
| | @Frequency 1e+6 Hz | @Frequency 1e+6 Hz | |

| Descriptive Properties | Value | Comments |
|--|---|----------|
| Chemical Resistance - Alcohols | Fair | |
| Chemical Resistance - Alkalis | Poor | |
| Chemical Resistance - Dilute Acids | Fair | |
| Chemical Resistance - Greases and Oils | Good | |
| Permeability to Oxygen @25°C | 0.1-0.2 x 10 ⁻¹³ cm ³ .cm cm ⁻² s ⁻¹ Pa ⁻¹ | Film |
| Permeability to Water @25°C | 1000-2000 x 10 ⁻¹³ cm ³ .cm cm ⁻² s ⁻¹ Pa ⁻¹ | Film |

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