

# Biomer® P209

## Biodegradable Polymers

### Biomer

#### Message:

Properties of the resins  
can be processed as classic thermoplasts  
biodegradable  
waterproof  
small tendency to creep  
behaves similar to LPC's in the melt, for this:  
finest surfaces  
thin walls  
microparts  
free from even traces of catalysts!  
highly crystalline (60 to 70%), for this:  
excellent resistance to solvents  
temperature of use: -30 to 120°C  
shrinkage: 1,3 %

| General Information                          |                             |                        |
|----------------------------------------------|-----------------------------|------------------------|
| Features                                     | Biodegradable               |                        |
|                                              | Crystalline                 |                        |
|                                              | Good Creep Resistance       |                        |
|                                              | Low to No Water Absorption  |                        |
|                                              | Pleasing Surface Appearance |                        |
|                                              | Renewable Resource Content  |                        |
|                                              | Solvent Resistant           |                        |
|                                              |                             |                        |
| Forms                                        | Pellets                     |                        |
| Processing Method                            | Extrusion                   |                        |
|                                              | Injection Molding           |                        |
| Physical                                     | Nominal Value               | Unit                   |
| Density                                      | 1.20                        | g/cm <sup>3</sup>      |
| Melt Mass-Flow Rate (MFR) (180°C/2.16 kg)    | 10                          | g/10 min               |
| Melt Volume-Flow Rate (MVR) (180°C/2.16 kg)  | 10.0                        | cm <sup>3</sup> /10min |
| Molding Shrinkage                            | 1.2 to 1.3                  | %                      |
| Water Absorption (Equilibrium, 23°C, 50% RH) | 0.75                        | %                      |
| Crystallinity                                | 60 to 70                    | %                      |
| Flexural Strain at Break                     | 4.7                         | %                      |
| Temperature of Use                           | -30 to 120                  | °C                     |
| Hardness                                     | Nominal Value               | Unit                   |

| Shore Hardness (Shore D)                          | 57            |                   |              |
|---------------------------------------------------|---------------|-------------------|--------------|
| Mechanical                                        | Nominal Value | Unit              | Test Method  |
| Tensile Modulus <sup>1</sup>                      | 840 to 1200   | MPa               |              |
| Tensile Stress <sup>2</sup> (Yield)               | 15.0 to 20.0  | MPa               |              |
| Tensile Strain <sup>3</sup> (Break)               | 8.0 to 15     | %                 |              |
| Flexural Stress                                   |               |                   |              |
| 3.5% Strain                                       | 16.0          | MPa               |              |
| --                                                | 18.0          | MPa               |              |
| Impact                                            | Nominal Value | Unit              | Test Method  |
| Charpy Notched Impact Strength                    |               |                   | ISO 179/1eA  |
| -30°C                                             | 3.4           | kJ/m <sup>2</sup> |              |
| 23°C                                              | 4.7           | kJ/m <sup>2</sup> |              |
| Charpy Unnotched Impact Strength                  |               |                   | ISO 179/1eU  |
| -30°C                                             | 70            | kJ/m <sup>2</sup> |              |
| 23°C                                              | No Break      |                   |              |
| Thermal                                           | Nominal Value | Unit              | Test Method  |
| Heat Deflection Temperature (1.8 MPa, Unannealed) | 50.0          | °C                | ISO 75-2/A   |
| Vicat Softening Temperature                       |               |                   |              |
| --                                                | 134           | °C                | ISO 306/A120 |
| --                                                | 54.0          | °C                | ISO 306/B50  |
| Injection                                         | Nominal Value | Unit              |              |
| Drying Temperature                                | 60.0          | °C                |              |
| Drying Time                                       | > 2.0         | hr                |              |
| Rear Temperature                                  | 180           | °C                |              |
| Middle Temperature                                | 160           | °C                |              |
| Front Temperature                                 | 145 to 155    | °C                |              |
| Nozzle Temperature                                | 140           | °C                |              |
| Processing (Melt) Temp                            | 195           | °C                |              |
| Mold Temperature                                  | 35.0 to 55.0  | °C                |              |
| Extrusion                                         | Nominal Value | Unit              |              |
| Drying Temperature                                | 60.0          | °C                |              |
| Drying Time                                       | > 2.0         | hr                |              |
| Cylinder Zone 1 Temp.                             | 180           | °C                |              |
| Cylinder Zone 2 Temp.                             | 160           | °C                |              |
| Cylinder Zone 3 Temp.                             | 155           | °C                |              |
| Cylinder Zone 4 Temp.                             | 145           | °C                |              |
| Adapter Temperature                               | 140           | °C                |              |
| Melt Temperature                                  | > 195         | °C                |              |
| Die Temperature                                   | 35.0 to 55.0  | °C                |              |
| NOTE                                              |               |                   |              |
| 1.                                                | 1 mm/min      |                   |              |

|    |           |
|----|-----------|
| 2. | 50 mm/min |
| 3. | 50 mm/min |

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