

NatureWorks® 3100HP

Ingeo 3100HP is a medium viscosity product from NatureWorks LLC, designed for medium flow injection molding applications. It is designed to crystallize during processing, leading to higher heat deflection temperatures in opaque applications. See Table 1 for properties.

Physical Properties	Metric	English	Comments
Specific Gravity	1.24 g/cc	1.24 g/cc	ASTM D792
Viscosity Measurement	3.10	3.10	RV measured at 1.0 g/dL in chloroform at 30°C; ASTM D5225
Linear Mold Shrinkage	0.002 - 0.004 cm/cm	0.002 - 0.004 in/in	
	0.0170 - 0.0180 cm/cm	0.0170 - 0.0180 in/in	molded crystalline with 120°C mold temperature
Melt Flow	24.0 g/10 min @Load 2.16 kg, Temperature 210 °C	24.0 g/10 min @Load 4.76 lb, Temperature 410 °F	molded amorphous with 26°C mold temperature; ASTM D1238

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	64.0 MPa	9280 psi	molded crystalline with 120°C mold temperature; ASTM D638
	65.0 MPa	9430 psi	molded amorphous with 26°C mold temperature; ASTM D638
Elongation at Break	2.20 %	2.20 %	molded crystalline with 120°C mold temperature; ASTM D638
	3.4 %	3.4 %	molded amorphous with 26°C mold temperature; ASTM D638
Flexural Strength	108 MPa	15700 psi	molded crystalline with 120°C mold temperature; ASTM D790
	112 MPa	16200 psi	molded amorphous with 26°C mold temperature; ASTM D790
Flexural Modulus	3.59 GPa	520 ksi	molded amorphous with 26°C mold temperature; ASTM D790
	4.36 GPa	632 ksi	molded crystalline with 120°C mold temperature; ASTM D790

Izod Impact, Notched	0.182 J/cm	0.341 ft-lb/in	molded amorphous with 26°C mold temperature; ASTM D256
	0.320 J/cm	0.600 ft-lb/in	molded crystalline with 120°C mold temperature; ASTM D256

Thermal Properties	Metric	English	Comments
Melting Point	165 - 180 °C	329 - 356 °F	Peak crystalline melting point, molded crystalline with 120°C mold temperature
Deflection Temperature at 0.46 MPa (66 psi)	54.0 °C	129 °F	molded amorphous with 26°C mold temperature; ASTM E2092
	149 °C	300 °F	molded crystalline with 120°C mold temperature; ASTM E2092

Processing Properties	Metric	English	Comments
Processing Temperature	195 °C	383 °F	Compression Section
	200 °C	392 °F	Metering Section
Feed Temperature	20.0 °C	68.0 °F	Throat
	185 °C	365 °F	
Nozzle Temperature	200 °C	392 °F	
Melt Temperature	200 °C	392 °F	
Mold Temperature	120 °C	248 °F	
Back Pressure	1.72 MPa	250 psi	
Screw Speed	200 rpm	200 rpm	

Descriptive Properties			
Clarity	Opaque		molded crystalline with 120°C mold temperature
	Transparent		molded amorphous with 26°C mold temperature