



Property Data Sheet:

North Wood Plastics Wood-Filled Molding Grade Polypropylene

North Wood Plastics wood-filled molding grade polypropylene (PP) can be used almost anywhere unfilled PP or mineral-filled PP is used. For certain applications, our wood-filled PP may also replace some engineering grades, like ABS. In houseware applications you benefit from the high stiffness and fast mold cycle times of our wood-filled PP. And in automotive and material handling applications you benefit from the high stiffness to weight ratios that result in better rigidity, lighter weight and lower cost parts.

For applications demanding maximum impact performance, chemically coupled grades are also available. Please contact North Wood Plastics for details about these products.

PROPERTY	UNITS	ASTM TEST	UNFILLED RESIN ^A	20% FIBER	40% FIBER	60% FIBER
Density	g/cm ³	D792	.905	.966	1.039	1.145
Melt Flow Index	g/10 min	D1238	35	7.4 ^b	2.4 ^b	<0.5 ^b
Mold Shrinkage	%	D955	1.91	0.87	0.50	0.18
Tensile Strength @ Yield	Psi (MPa)	D638	4900 (33.8)	3970 (27.4)	3820 (26.3)	n/a
Tensile Strength @ Break	Psi (MPa)	D638	4480 (30.9)	3700 (25.3)	3650 (25.2)	2850 (19.7)
Tensile Modulus	psi (GPa)	D638	203,000 (2.5)	359,000 (2.5)	473,000 (3.3)	893,000 (6.2)
Elongation	%	D638	10	9.2	5.4	1.2
Flexural Modulus 1% Secant @ 0.05 in/min	psi (GPa)	D790	205,000 (1.4)	315,000 (2.2)	482,000 (3.3)	713,000 (4.9)
Flexural Strength	psi (MPa)	D790	5900 (40.7)	6800 (46.9)	6900 (47.6)	5670 (39.1)
Notched Izod Impact	ft-lbf/in (J/m)	D256	0.4 (21.5)	0.5 (29.5)	0.4 (22.3)	0.4 (23.3)
Un-notched Izod Impact	ft-lbf/in (J/m)	D256	n/a	2.4 (126)	1.6 (84)	0.7 (40)
HDT @ 264 psi	°F (°C)	D648	131 (55)	142 (61)	181 (83)	209 (98)

^a Unfilled resin data from published sources.

^b Melt Flow Index of wood filled formulations is measured at 190°C to prevent fiber degradation. Molding characteristics of *CelluPlas™* wood-filled PPs are often much better than the Melt Flow Index suggests.

The information contained herein is, to the best of our knowledge, true and accurate. However, we assume no liability for the accuracy or completeness of this information. Final determination of the suitability of this information or material for any use in any manner, and whether there is any infringement of patents, is the sole responsibility of the user.



Processing Guidelines: *Injection Molding*

The optimum performance of North Wood Plastics wood-filled compounds can be tailored by polymer choice, wood filler type and amount, and additive selection.

Processing conditions, such as injection pressures and speeds may be required to optimize molding conditions. Many molders take advantage of the lower heat content of our wood-filled resins to reduce cycle times by 10 to 30% compared to unfilled materials.

Some molders choose to add our heavily-loaded, wood-filled plastic compounds as "concentrates" or "masterbatches", blending them into their standard house resins. Others prefer our custom compounds made with the exact fiber content needed for maximum consistency and convenience. Regardless of form, the following processing guidelines apply:

SUGGESTED PROCESSING CONDITIONS

ITEM	CONDITIONS	COMMENTS
Dryer Inlet Temperatures		
HDPE, LDPE, PP	220° F	Typical desiccant dryers are satisfactory.
Styrenics	190° F	
Dew Point	-20° F	Dry to -20° F or until Inlet Dryer Temp - Outlet Dryer Temp = 10° F.
Drying Time	2-4 hours	Varies depending on initial moisture content, dryer efficiency and relative humidity.
Processing Temperatures		
Rear	< 360° F	Excessively high barrel heats can cause scorching.
Middle	< 370° F	
Front	< 380° F	
Nozzle	< 380° F	
Residence Time	< 15 minutes	Avoid excessively long residence times. Purge if necessary.
Blowing Agents		Low temperature blowing agents can be used effectively.
Screw Type	Conventional	Suggested.