



Technical Data Sheet:

**North Wood Plastics Wood-Filled
Extrusion Grade HDPE**

North Wood Plastics wood-filled HDPEs provide an attractive balance of increased stiffness with retained toughness in extrusion applications. For products demanding even higher performance, impact modified grades are also available. The data below is for molding grade material; extrusion grades show similar trends.

Our extruded wood-filled high density polyethylene grades are used in profiles for construction and housewares. Flat panels formed from our wood-filled products provide exceptional resistance to moisture in marine and agricultural applications.

PROPERTY	UNITS	ASTM TEST	UNFILLED RESIN ^a	20% FIBER	40% FIBER	60% FIBER
Density	g/cc	D792	.953	1.003	1.054	1.158
Melt Flow Index	g/10 min	D1238	20	2.6 ^b	2.3 ^b	1.5 ^b
Mold Shrinkage	%	D955	n/a	1.35	.72	.56
Tensile Strength @ Yield	psi (MPa)	D638	3850 (26.5)	2480 (17.1)	2580 (17.8)	2250 (15.5)
Tensile Strength @ Break	psi (MPa)	D638	n/a	2170 (14.9)	2320 (16.0)	2180 (15.1)
Tensile Modulus	psi (GPa)	D638	n/a	245,000 (1.7)	390,000 (2.7)	642,000 (4.4)
Elongation	%	D638	19	15	4.9	1.3
Flexural Modulus	psi (GPa)	D790	189,000 (1.3)	210,000 (1.4)	352,000 (2.4)	589,000 (4.1)
Flexural Strength	psi (MPa)	D790	n/a	4420 (30.5)	5090 (35.1)	4310 (29.7)
Notched Izod Impact	ft-lbf/in (J/m)	D256	0.56 (29.9)	0.5 (27.7)	0.4 (20.9)	0.3 (16.1)
Un-notched Izod Impact	ft-lbf/in (J/m)	D256	n/a	2.7 (145)	1.0 (55)	0.5 (27)
HDT (@ 264 psi)	°F (°C)	D648	n/a	113 (45)	127 (53)	143 (62)

^a Unfilled resin data from published sources.

^b Processing characteristics of wood filled PE are often much better than the Melt Flow Index suggests.

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Processing Guidelines: Profile & Sheet Extrusion

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

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

SUGGESTED PROCESSING CONDITIONS

ITEM	CONDITIONS	COMMENTS
Dryer Inlet Temperatures		
HDPE, LDPE, PP	220° F	Wood-filled compounds do require drying. 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.
Temperature Settings		
Zone 1	< 300-340° F	Excessively high barrel heats can cause scorching.
Zone 2	< 320-370° F	
Zone 3	< 340-380° F	
Zone 4	< 360-380° F	
Adapter	< 360-400° F	
Die	< 360-400° F	
Residence Time	< 15 minutes	Avoid excessively long residence times. Purge if necessary.
Blowing Agents		Low temperature blowing agents can be used effectively.
Screen Packs	< 20 mesh	One 10 or 20 mesh screen pack with breaker plate, if needed to regulate melt pressure and improve extrudate quality.
Draw Down	0-5%	Higher loadings reduce draw downs.
Screw Type	Conventional	Suggested.

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