HiDura™ S3X NT

Ascend Performance Materials Operations LLC - *Polyamide 610*

General Information

Product Description

HiDura S3X NT is a viscosity PA610 grade with 62% bio-based content. It is suitable for monofilament, film, and general purpose injection molding applications; it can also be used for molded applications where high abrasion resistance and ductility are key requirements. PA610 offers a unique balance of thermal, mechanical, and physical properties.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Features	• Abrasion Resistant • Chemical Resistant	• High Viscosity • Renewable Resource Content	
Agency Ratings	• ASTM D4066 PA0710B4301	• ASTM D6779 PA0000B4331	• ISO 1043 PA610
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Casting • Extrusion	• Film Extrusion • Injection Molding	• Profile Extrusion • Sheet Extrusion
Resin ID	• PA610		

Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density	1.07	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	1.6	--	%	
Flow : 73°F, 0.0787 in	1.8	--	%	
Water Absorption (24 hr, 73°F)	0.50	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	1.5	--	%	ISO 62
Biobased Carbon Content	62	--	%	
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus (73°F)	276000	160000	psi	ISO 527-1
Tensile Stress (Yield, 73°F)	10400	9860	psi	ISO 527-2
Tensile Stress (Break, 73°F)	10400	9430	psi	ISO 527-2
Tensile Strain (Yield, 73°F)	5.2	21	%	ISO 527-2
Tensile Strain (Break, 73°F)	> 50	> 50	%	ISO 527-2
Flexural Modulus (73°F)	276000	160000	psi	ISO 178
Flexural Stress (73°F)	8410	4350	psi	ISO 178
Poisson's Ratio (73°F)	0.38	--		ISO 527-2
Impact	**Dry**	**Conditioned**	**Unit**	**Test Method**
Charpy Notched Impact Strength				ISO 179/1eA
-40°F	3.9	3.7	ft·lb/in²	
-22°F	3.5	3.8	ft·lb/in²	
73°F	3.3	5.7	ft·lb/in²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-40°F	No Break	No Break		
-22°F	No Break	No Break		
73°F	No Break	No Break		
Notched Izod Impact Strength				ISO 180/1A
-40°F	2.8	3.0	ft·lb/in²	
-22°F	2.7	3.2	ft·lb/in²	
73°F	2.4	4.4	ft·lb/in²	

Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	250	--	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	126	--	°F	ISO 75-2/A
Melting Temperature	437	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	5.6E-5	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	5.8E-5	--	in/in/°F	ISO 11359-2
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Electric Strength (0.0394 in)	760	710	V/mil	IEC 60243-1

Processing Information

Injection	Dry	Unit
Drying Temperature	167 to 185	°F
Drying Time	4.0 to 8.0	hr
Suggested Max Moisture	< 0.20	%
Suggested Max Regrind	20	%
Rear Temperature	518 to 545	°F
Middle Temperature	527 to 554	°F
Front Temperature	527 to 572	°F
Nozzle Temperature	527 to 572	°F
Processing (Melt) Temp	527 to 572	°F
Mold Temperature	149 to 212	°F
Extrusion	**Dry**	**Unit**
Cylinder Zone 1 Temp.	482 to 518	°F
Cylinder Zone 2 Temp.	482 to 518	°F
Cylinder Zone 3 Temp.	482 to 518	°F
Cylinder Zone 4 Temp.	482 to 518	°F
Cylinder Zone 5 Temp.	482 to 518	°F
Melt Temperature	464 to 509	°F
Die Temperature	482 to 518	°F

Notes

[1] Typical properties: these are not to be construed as specifications.