Ultramid® 8253 HS

BASF Corporation - Polyamide 6

Monday, November 4, 2019

General Information

Product Description

This resin is a heat stabilized, impact modified type 6 graft copolymer developed for both injection molding and extrusion applications requiring improved dry as molded toughness and increased flexibility. It is also available in non-heat stabilized (Ultramid 8253) and/or pigmented versions.

Applications

Ultramid 8253 HS is generally recommended for applications such as plugs, receptacles, flexible connector covers, weed trimmer components, clips, fasteners, flanges, key housings as well as many flexible tubing applications.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• North America	
Additive	• Heat Stabilizer	• Impact Modifier	
Features	• Copolymer • Good Flexibility	• Good Toughness • Heat Stabilized	• Impact Modified
Uses	• Fasteners • Housings	• Lawn and Garden Equipment • Plugs	• Protective Coverings • Tubing
Agency Ratings	• EC 1907/2006 (REACH)		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• ASTM D4000 PA0272 AA002 • ASTM D4066 PA282 • CHRYSLER MS-DB-41 CPN2160 Color: Natural	• CHRYSLER MS-DB-41 CPN4056 Color: 100% Color Match • GM GMP.PA6.002 Color: Natural • GM GMP.PA6.005 Color: Black	• GM GMP.PA6.005 Color: Natural
Appearance	• Colors Available		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density / Specific Gravity	1.09	--		ASTM D792
Density	1.09	--	g/cm³	ISO 1183
Molding Shrinkage - Flow (0.125 in)	0.012	--	in/in	
Water Absorption (24 hr)	1.5	--	%	ASTM D570
Water Absorption (24 hr, 73°F)	1.5	--	%	ISO 62
Water Absorption (Saturation)	8.1	--	%	ASTM D570
Water Absorption				ISO 62
Saturation, 73°F	8.1	--	%	
Water Absorption				ASTM D570
Equilibrium, 50% RH	2.3	--	%	
Water Absorption				ISO 62
Equilibrium, 73°F, 50% RH	2.3	--	%	

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				ISO 527-2
-40°F	411000	479000	psi	
73°F	334000	106000	psi	
176°F	58000	53700	psi	
248°F	42800	31900	psi	
302°F	36300	31900	psi	
Tensile Strength				ASTM D638
Yield, -40°F	17000	16800	psi	
Yield, 73°F	9430	4640	psi	
Yield, 176°F	3630	2900	psi	
Yield, 250°F	2900	--	psi	
Tensile Stress				ISO 527-2
Yield, -40°F	17000	16800	psi	
Yield, 73°F	8700	4640	psi	
Yield, 176°F	3630	2900	psi	
Yield, 248°F	2900	--	psi	
Yield, 302°F	2180	2180	psi	
Tensile Strength				ASTM D638
Break, -40°F	14500	10200	psi	
Break, 73°F	8700	--	psi	
Tensile Elongation				ASTM D638
Yield, -40°F	7.0	--	%	
Yield, 73°F	4.0	15	%	
Yield, 176°F	29	--	%	
Yield, 250°F	34	30	%	
Tensile Strain (Yield, 73°F)	4.0	15	%	ISO 527-2
Tensile Elongation				ASTM D638
Break, -40°F	9.0	20	%	
Break, 73°F	> 100	> 100	%	
Nominal Tensile Strain at Break				ISO 527-2
-40°F	9.0	20	%	
73°F	40	> 50	%	
Flexural Modulus				ASTM D790
-40°F	442000	457000	psi	
73°F	321000	97200	psi	
149°F	60200	--	psi	
194°F	47100	--	psi	
250°F	37700	--	psi	
Flexural Modulus (73°F)	276000	--	psi	ISO 178
Flexural Strength				ASTM D790
-40°F	21500	20500	psi	
73°F	12600	4640	psi	
149°F	3630	--	psi	
194°F	2900	--	psi	
250°F	2030	--	psi	
Flexural Stress (73°F)	9430	--	psi	ISO 178

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Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-22°F	2.4	--	ft·lb/in²	
73°F	8.6	--	ft·lb/in²	
Charpy Unnotched Impact Strength				ISO 179
73°F	No Break	--		
Notched Izod Impact				ASTM D256
-40°F	1.5	1.2	ft·lb/in	
73°F	2.8 ft·lb/in	No Break		
Drop Impact Resistance (73°F)	200	> 200	ft·lb	Internal Method
Hardness	**Dry**	**Conditioned**	**Unit**	**Test Method**
Rockwell Hardness (R-Scale)	82	--		ASTM D785
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
Deflection Temperature Under Load				ASTM D648
66 psi, Unannealed	334	--	°F	
Heat Deflection Temperature				ISO 75-2/B
66 psi, Unannealed	320	--	°F	
Deflection Temperature Under Load				ASTM D648
264 psi, Unannealed	140	--	°F	
Heat Deflection Temperature				ISO 75-2/A
264 psi, Unannealed	131	--	°F	
Peak Melting Temperature	428	--	°F	ASTM D3418
Melting Temperature (DSC)	428	--	°F	ISO 3146
CLTE - Flow	5.5E-5	--	in/in/°F	ASTM E831
CLTE - Flow	4.9E-5	--	in/in/°F	
CLTE - Transverse	5.2E-5	--	in/in/°F	
RTI Elec				UL 746
0.028 in	221	--	°F	
0.030 in	221	--	°F	
0.06 in	221	--	°F	
0.12 in	221	--	°F	
0.24 in	221	--	°F	
RTI Imp				UL 746
0.028 in	203	--	°F	
0.030 in	203	--	°F	
0.06 in	221	--	°F	
0.12 in	221	--	°F	
0.24 in	221	--	°F	
RTI Str				UL 746
0.028 in	203	--	°F	
0.030 in	203	--	°F	
0.06 in	221	--	°F	
0.12 in	221	--	°F	
0.24 in	221	--	°F	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity (0.0591 in)	> 1.0E+15	--	ohms·cm	ASTM D257
Volume Resistivity	> 1.0E+15	--	ohms·cm	IEC 60093
Comparative Tracking Index	600	--	V	IEC 60112

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Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.030 in	HB	--		
0.06 in	HB	--		
0.12 in	HB	--		
0.24 in	HB	--		

Processing Information

Injection	Dry	Unit
Drying Temperature	176	°F
Drying Time	2.0 to 4.0	hr
Suggested Max Moisture	0.20	%
Processing (Melt) Temp	464 to 518	°F
Mold Temperature	140 to 185	°F
Injection Pressure	508 to 1810	psi
Injection Rate	Fast	

Notes

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