Product Information

Aug 2013

Ultramid® 8350 HS
Polyamide 6

BASF The Chemical Company

Product Description

Ultramid 8350 HS is a heat stabilized, impact modified type 6 graft copolymer developed for extrusion, tubing, and jacketing applications requiring a high level of toughness combined with a moderate level of flexibility. It is also available in non-heat stabilized (Ultramid 8350) and/or pigmented versions.

Applications

Ultramid 8350 HS is generally recommended for applications such as automotive vacuum tubing, cable jacketing, and high pressure and hydraulic hoses.

PHYSICAL	ASTM Test Method	Property Value	
Specific Gravity	D-792	1.07	
Mold Shrinkage (1/8" bar, in/in)		0.014	
Moisture, %	D-570		
(24 Hour)		1.1	
(50% RH)		1.9	
(Saturation)		6.7	
MECHANICAL	**ASTM Test Method**	**Dry**	**Conditioned**
Tensile Strength, Yield, MPa (psi)	D-638		
-40C (-40F)		85 (12,300)	95 (13,800)
23C (73F)		53 (7,680)	32 (4,640)
80C (176F)		20 (2,900)	-
121C (250F)		14 (2,030)	-
Elongation, Yield, %	D-638		
-40C (-40F)		8	-
23C (73F)		5	9
80C (176F)		37	-
121C (250F)		27	-
Elongation, Break, %	D-638		
23C (73F)		>100	>100
Flexural Modulus, MPa (psi)	D-790		
-40C (-40F)		2,300 (334,000)	2,760 (400,000)
23C (73F)		1,800 (261,000)	620 (89,900)
65C (149F)		270 (39,200)	-
90C (194F)		210 (30,400)	-
121C (250F)		165 (23,900)	-
Flexural Strength, MPa (psi)	D-790		
-40C (-40F)		120 (17,400)	120 (17,400)
23C (73F)		65 (9,430)	30 (4,350)
65C (149F)		20 (2,900)	-
90C (194F)		10 (1,450)	-
121C (250F)		10 (1,450)	-
Rockwell Hardness, R Scale	D-785	78	-

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IMPACT	ASTM Test Method	Dry	Conditioned
Notched Izod Impact, J/M (ft-lbs/in)	D-256		
-40C (-40F)		190 (3.6)	155 (2.9)
23C (73F)		NB	NB
THERMAL	**ASTM Test Method**	**Dry**	**Conditioned**
Melting Point, C(F)	D-3418	220 (428)	-
Heat Deflection @ 264 psi (1.8 MPa) C(F)	D-648	56 (132)	-
Heat Deflection @ 66 psi (.45 MPa) C(F)	D-648	145 (293)	-
Coef. of Linear Thermal Expansion, mm/mm C (in/in F)	E-831	1.06 X10-4	-
UL RATINGS	**UL Test Method**	**Property Value**	
Flammability Rating, 1.5mm	UL94	HB	
Relative Temperature Index, 1.5mm	UL746B		
Mechanical w/o Impact, C		65	
Mechanical w/ Impact, C		65	
Electrical, C		65	
ELECTRICAL	**ASTM Test Method**	**Dry**	**Conditioned**
Volume Resistivity, 1.5 mm	D-257	>1E13	-

Processing Guidelines

Material Handling
Max. Water content: 0.1%
Product is supplied in sealed containers and drying prior to molding is not required. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 80 degC (176 degF) is recommended. Drying time is dependent on moisture level, but 2-4 hours is generally sufficient. Further information concerning safe handling procedures can be obtained from the Material Safety Data Sheet. Alternatively, please contact your BASF representative.

Typical Profile
Melt Temperature 240-250 degC (464-482 degF)

Typical Barrel Profile (degC):

Rear 245-260 degC (473-500 degF)
Middle 240-255 degC (464-491 degF)
Front 240-250 degC (464-482 degF)

Head 225-245 degC (437-473 degF)
Flange 225-240 degC (437-464 degF)
Die 225-240 degC (437-464 degF)

Screw Parameters

Metering Section	40%
Transition Section	6 to 7 flights
Feed Section	balance of screw length
Compression Ratio	3.5:1 to 4.0:1
L/D Ratio	20:1 to 24:1

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Tooling & Sizing
Die to Finished Tube dia. 1.5-2.0:1

Selection of pin and die size will be dependent on the material viscosity. In general, the ratio of die size to finished tube diameter is about 1.5-2.0:1. The mandrel (pin) size is determined the same way in relation to the inner tube diameter.

Free (open tank) extrusion is recommended when producing tube diameters 1 cm and below. For larger diameters, a differential pressure vacuum tank is recommended.

Tooling draw ratio is generally higher with free extrusion versus sizing, but will depend on melt viscosity. The vacuum sizer entrance should be about 3-9% larger than the finished tube outer diameter. Selection will depend on melt viscosity and die swell of the extrudate.

Quenching
For diameters less than or equal to 1 cm (.39") O.D., open tank quenching with normal tap water is suggested. Depending upon line speed, quenching distance can vary from 7.5 to 12 meters (24.6-39.4 feet). A short air gap (die to quench water) is recommended for both tubing and cable jacketing for best flexibility.

Note

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