

Ultraform® H 4320 UNC Q600

Acetal (POM) Copolymer

BASF Corporation

Message:

Ultraform H 4320 UNC Q600 is an extrusion POM high molecular weight grade. This grade enables high extrusion rates with thick-walled product. It also exhibits high thermal stability and a low tendency to discolor.

Applications

Typical applications include pipe and semi-finished parts for gear wheels, bearings and other mechanical elements.

General Information			
UL YellowCard	E36632-531677	E36632-531678	
Features	High molecular weight		
	Copolymer		
	Good color stability		
	Thermal stability, good		
Uses	Wheels		
	Gear		
	Piping system		
	Thick wall fittings (parts)		
	Bearing		
Agency Ratings	EC 1907/2006 (REACH)		
RoHS Compliance	RoHS compliance		
Forms	Particle		
Processing Method	Extrusion		
Multi-Point Data	Isochronous Stress vs. Strain (ISO 11403-1)		
	Isothermal Stress vs. Strain (ISO 11403-1)		
	Secant Modulus vs. Strain (ISO 11403-1)		
	Shear Modulus vs. Temperature (ISO 11403-1)		
	Specific Heat vs. Temperature (ISO 11403-2)		
	Specific Volume vs Temperature (ISO 11403-2)		
	Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.39	g/cm³	ASTM D792, ISO 1183
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	2.20	cm³/10min	ISO 1133
Molding Shrinkage			
Flow: 3.18mm	2.0	%	
Vertical flow direction	2.1	%	ISO 294-4

Flow direction	2.2	%	ISO 294-4
Water Absorption			
Saturation	0.80	%	ASTM D570
Saturated, 23°C	0.80	%	ISO 62
Balance, 50% RH	0.20	%	ASTM D570
Equilibrium, 23°C, 50% RH	0.20	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	2600	MPa	ISO 527-2
Tensile Strength			
Yield, 23°C	63.0	MPa	ASTM D638, ISO 527-2
Yield, -40°C	93.0	MPa	ISO 527-2
Yield, 80°C	32.0	MPa	ISO 527-2
Tensile Elongation (Yield, 23°C)	10	%	ASTM D638, ISO 527-2
Nominal Tensile Strain at Break (23°C)	31	%	ISO 527-2
Tensile Creep Modulus (1000 hr)	1300	MPa	ISO 899-1
Flexural Modulus			
23°C	2410	MPa	ASTM D790
23°C	2700	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179
-30°C	5.5	kJ/m ²	ISO 179
23°C	6.0	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength			ISO 179
-30°C	180	kJ/m ²	ISO 179
23°C	250	kJ/m ²	ISO 179
Notched Izod Impact			
-40°C	69	J/m	ASTM D256
23°C	80	J/m	ASTM D256
-40°C	4.0	kJ/m ²	ISO 180
23°C	5.0	kJ/m ²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, not annealed	154	°C	ASTM D648
1.8 MPa, not annealed	96.0	°C	ASTM D648
1.8 MPa, not annealed	95.0	°C	ISO 75-2/A
Peak Melting Temperature	166	°C	ASTM D3418, ISO 3146
CLTE - Flow			
--	6.0E-5	cm/cm/°C	ASTM E831
--	1.1E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity ¹	1.0E+13	ohms	ASTM D257, IEC 60093
Volume Resistivity			

1.50 mm	1.0E+13	ohms·cm	ASTM D257
--	1.0E+13	ohms·cm	IEC 60093
Dielectric Strength	40	kV/mm	IEC 60243-1
Dielectric Constant			IEC 60250
100 Hz	3.80		IEC 60250
1 MHz	3.80		IEC 60250
Dissipation Factor			IEC 60250
100 Hz	1.0E-3		IEC 60250
1 MHz	5.0E-3		IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Extrusion	Nominal Value	Unit	
Drying Temperature	80.0 - 110	°C	
Drying Time	2.0 - 4.0	hr	
Suggested Max Moisture	0.15	%	
Cylinder Zone 1 Temp.	170	°C	
Cylinder Zone 3 Temp.	180	°C	
Cylinder Zone 5 Temp.	200	°C	
Adapter Temperature	175	°C	
Melt Temperature	175 - 200	°C	
Die Temperature	175	°C	
Extruder Screw L/D Ratio	20.1:1.0 to 25.0:1.0		
Extruder Screw Compression Ratio	3.0:1.0		
Extrusion instructions			
Screw Parameters			
Metering Section : 40%			
Transition Section : 3 to 5 flights			
Feed Section : balance of screw length			
NOTE			
1.	1.5 mm		

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