



# Ultraform® H 4320 UNC Q600

## BASF Corporation - Acetal (POM) Copolymer

Saturday, November 2, 2019

### General Information

#### Product Description

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

Material Status	• Commercial: Active		
Availability	• North America		
Features	• Copolymer	• Good Thermal Stability	
	• Good Color Stability	• High Molecular Weight	
Uses	• Bearings	• Piping	• Wheels
	• Gears	• Thick-walled Parts	
Agency Ratings	• EC 1907/2006 (REACH)		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• CHRYSLER MS-DB-100 CPN4240 Color: Natural		
Forms	• Pellets		
Processing Method	• Extrusion		

### ASTM & ISO Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.39		ASTM D792
Density	1.39	g/cm <sup>3</sup>	ISO 1183
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	2.20	cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage - Flow (0.125 in)	0.020	in/in	
Molding Shrinkage			ISO 294-4
Across Flow	2.1	%	
Flow	2.2	%	
Water Absorption (Saturation)	0.80	%	ASTM D570
Water Absorption (Saturation, 73°F)	0.80	%	ISO 62
Water Absorption (Equilibrium, 50% RH)	0.20	%	ASTM D570
Water Absorption (Equilibrium, 73°F, 50% RH)	0.20	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (73°F)	377000	psi	ISO 527-2
Tensile Strength (Yield, 73°F)	9140	psi	ASTM D638
Tensile Stress			ISO 527-2
Yield, -40°F	13500	psi	
Yield, 73°F	9140	psi	
Yield, 176°F	4640	psi	
Tensile Elongation (Yield, 73°F)	10	%	ASTM D638
Tensile Strain (Yield, 73°F)	10	%	ISO 527-2
Nominal Tensile Strain at Break (73°F)	31	%	ISO 527-2
Tensile Creep Modulus (1000 hr)	189000	psi	ISO 899-1
Flexural Modulus (73°F)	350000	psi	ASTM D790

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Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus (73°F)	392000	psi	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179
-22°F	2.6	ft·lb/in <sup>2</sup>	
73°F	2.9	ft·lb/in <sup>2</sup>	
Charpy Unnotched Impact Strength			ISO 179
-22°F	86	ft·lb/in <sup>2</sup>	
73°F	120	ft·lb/in <sup>2</sup>	
Notched Izod Impact			ASTM D256
-40°F	1.3	ft·lb/in	
73°F	1.5	ft·lb/in	
Notched Izod Impact Strength			ISO 180
-40°F	1.9	ft·lb/in <sup>2</sup>	
73°F	2.4	ft·lb/in <sup>2</sup>	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	309	°F	ASTM D648
Heat Deflection Temperature (66 psi, Unannealed)	313	°F	ISO 75-2/B
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	205	°F	
Heat Deflection Temperature (264 psi, Unannealed)	203	°F	ISO 75-2/A
Peak Melting Temperature	331	°F	ASTM D3418
Melting Temperature (DSC)	331	°F	ISO 3146
CLTE - Flow	3.3E-5	in/in/°F	ASTM E831
CLTE - Flow	6.1E-5	in/in/°F	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity (0.0591 in)	1.0E+13	ohms	ASTM D257
Surface Resistivity	1.0E+13	ohms	IEC 60093
Volume Resistivity (0.0591 in)	1.0E+15	ohms·cm	ASTM D257
Volume Resistivity	1.0E+15	ohms·cm	IEC 60093
Electric Strength	1000	V/mil	IEC 60243-1
Dielectric Constant			IEC 60250
100 Hz	3.80		
1 MHz	3.80		
Dissipation Factor			IEC 60250
100 Hz	1.0E-3		
1 MHz	5.0E-3		
Comparative Tracking Index	600	V	IEC 60112

### Processing Information

Extrusion	Nominal Value	Unit
Drying Temperature	176 to 230	°F
Drying Time	2.0 to 4.0	hr
Suggested Max Moisture	0.15	%
Cylinder Zone 1 Temp.	338	°F
Cylinder Zone 3 Temp.	356	°F
Cylinder Zone 5 Temp.	392	°F
Adapter Temperature	347	°F
Melt Temperature	347 to 392	°F

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Extrusion	Nominal Value	Unit
Die Temperature	347	°F
Extruder Screw L/D Ratio	20.1:1.0 to 25.0:1.0	
Extruder Screw Compression Ratio	3.0:1.0	

### Extrusion Notes

#### Screw Parameters

- Metering Section : 40%
- Transition Section : 3 to 5 flights
- Feed Section : balance of screw length

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.