Crastin® S600F20 NC010

DuPont Performance Polymers - THERMOPLASTIC POLYESTER RESIN

Wednesday, January 29, 2020

General Information

Product Description			
Unreinforced Medium Viscosity Polybutylene Terephthalate			
General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Mold Release		
Features	• Medium Viscosity		
RoHS Compliance	• Contact Manufacturer		
Automotive Specifications	• GM QK 006511		
Forms	• Pellets		
Processing Method	• Injection Molding		
Part Marking Code (ISO 11469)	• >PBT<		
Resin ID (ISO 1043)	• PBT		
ISO Designation	• ISO 7792-PBT,MGNR,11-030		

ASTM & ISO Properties [1]

Physical	Typical Value (English)		Typical Value (SI)		Test Method
Density	1.31	g/cm³	1.31	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (250°C/2.16 kg)	19	g/10 min	19	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (250°C/2.16 kg)	14	cm³/10min	14	cm³/10min	ISO 1133
Molding Shrinkage					ISO 294-4
Across Flow	1.6	%	1.6	%	
Across Flow : 176°F (80°C), 48 hr	0.50	%	0.50	%	
Flow	1.7	%	1.7	%	
Flow : 176°F (80°C), 48 hr	0.30	%	0.30	%	
Water Absorption					ISO 62
Saturation, 73°F (23°C), 0.0787 in (2.00 mm)	0.40	%	0.40	%	
Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH	0.20	%	0.20	%	
Viscosity Number	130	cm³/g	130	cm³/g	ISO 307
Intrinsic Viscosity	1.1		1.1		ISO 307, 1157, 1628

Mechanical	Typical Value (English)		Typical Value (SI)		Test Method
Tensile Modulus	363000	psi	2500	MPa	ISO 527-2
Tensile Stress (Yield)	7980	psi	55.0	MPa	ISO 527-2
Tensile Strain (Yield)	4.0	%	4.0	%	ISO 527-2
Nominal Tensile Strain at Break	40	%	40	%	ISO 527-2
Tensile Creep Modulus					ISO 899-1
1 hr	377000	psi	2600	MPa	
1000 hr	261000	psi	1800	MPa	

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Mechanical	Typical Value	(English)	Typical Value	(SI)	Test Method
Flexural Modulus	319000	psi	2200	MPa	ISO 178
Flexural Stress	12300	psi	85.0	MPa	ISO 178
Poisson's Ratio	0.38		0.38		
Coefficient of Friction					ASTM D1894
vs. Itself - Static	0.40		0.40		
vs. Steel - Static	0.40		0.40		
Impact	**Typical Value**	**(English)**	**Typical Value**	**(SI)**	**Test Method**
Charpy Notched Impact Strength					ISO 179/1eA
-22°F (-30°C)	1.9	ft·lb/in²	4.0	kJ/m²	
73°F (23°C)	2.4	ft·lb/in²	5.0	kJ/m²	
Charpy Unnotched Impact Strength					ISO 179/1eU
-22°F (-30°C)	No Break		No Break		
73°F (23°C)	No Break		No Break		
Notched Izod Impact Strength (73°F (23°C))	2.1	ft·lb/in²	4.5	kJ/m²	ISO 180/1A
Unnotched Izod Impact Strength (73°F (23°C))	No Break		No Break		ISO 180/1U
Hardness	**Typical Value**	**(English)**	**Typical Value**	**(SI)**	**Test Method**
Ball Indentation Hardness					ISO 2039-1
H 358/30	20200	psi	139	MPa	
H 961/30	20200	psi	139	MPa	
Thermal	**Typical Value**	**(English)**	**Typical Value**	**(SI)**	**Test Method**
Heat Deflection Temperature					
66 psi (0.45 MPa), Unannealed	239	°F	115	°C	ISO 75-2/B
66 psi (0.45 MPa), Annealed	356	°F	180	°C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	122	°F	50.0	°C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	140	°F	60.0	°C	ISO 75-2/A
Glass Transition Temperature [2]	131	°F	55.0	°C	ISO 11357-2
Vicat Softening Temperature	347	°F	175	°C	ISO 306/B50
Melting Temperature [2]	437	°F	225	°C	ISO 11357-3
Peak Crystallization Temperature [2]	378	°F	192	°C	ISO 11357-3
CLTE					ISO 11359-2
Flow	6.1E-5	in/in/°F	1.1E-4	cm/cm/°C	
Flow : -40 to 73°F (-40 to 23°C)	4.4E-5	in/in/°F	8.0E-5	cm/cm/°C	
Flow : 131 to 320°F (55 to 160°C)	1.1E-4	in/in/°F	1.9E-4	cm/cm/°C	
Transverse	6.7E-5	in/in/°F	1.2E-4	cm/cm/°C	
Transverse : -40 to 73°F (-40 to 23°C)	5.0E-5	in/in/°F	9.0E-5	cm/cm/°C	
Transverse : 131 to 320°F (55 to 160°C)	1.1E-4	in/in/°F	2.0E-4	cm/cm/°C	
Thermal Conductivity	2.0	Btu·in/hr/ft²/°F	0.29	W/m/K	
Electrical	**Typical Value**	**(English)**	**Typical Value**	**(SI)**	**Test Method**
Surface Resistivity	1.0E+12	ohms	1.0E+12	ohms	IEC 62631-3-2
Volume Resistivity	> 1.0E+13	ohms·m	> 1.0E+13	ohms·m	IEC 62631-3-1
Electric Strength	660	V/mil	26	kV/mm	IEC 60243-1
Relative Permittivity					IEC 62631-2-1
1 MHz	3.20		3.20		
100 Hz	3.60		3.60		

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Electrical	Typical Value (English)		Typical Value (SI)		Test Method
Dissipation Factor					IEC 62631-2-1
100 Hz	7.9E-4		7.9E-4		
1 MHz	0.020		0.020		
Comparative Tracking Index	575	V	575	V	IEC 60112
Flammability	**Typical Value (English)**		**Typical Value (SI)**		**Test Method**
Flame Rating					UL 94
0.030 in (0.75 mm)	HB		HB		IEC 60695-11-10, -20
0.06 in (1.5 mm)	HB		HB		
Glow Wire Ignition Temperature					IEC 60695-2-13
0.030 in (0.75 mm)	1380	°F	750	°C	
0.04 in (1.0 mm)	1380	°F	750	°C	
0.06 in (1.5 mm)	1380	°F	750	°C	
0.08 in (2.0 mm)	1380	°F	750	°C	
0.12 in (3.0 mm)	1340	°F	725	°C	
Oxygen Index	22	%	22	%	ISO 4589-2
FMVSS Flammability	SE		SE		FMVSS 302
Fogging - G-value (condensate)	0.0	g	0.0	g	ISO 6452
Fill Analysis	**Typical Value (English)**		**Typical Value (SI)**		
Melt Density	1.11	g/cm³	1.11	g/cm³	
Ejection Temperature	338	°F	170	°C	
Specific Heat Capacity of Melt	0.504	Btu/lb/°F	2110	J/kg/°C	
Thermal Conductivity of Melt	1.5	Btu·in/hr/ft²/°F	0.21	W/m/K	
Additional Information	**Typical Value (English)**		**Typical Value (SI)**		**Test Method**
Odor [3]	3.00		3.00		VDA 270
Thermal Desorption Analysis of Organic Emissions [4]	1.00	µg/g	1.00	µg/g	VDA 278

Processing Information

Injection	Typical Value (English)		Typical Value (SI)	
Drying Temperature	248	°F	120	°C
Drying Time - Desiccant Dryer	2.0 to 4.0	hr	2.0 to 4.0	hr
Suggested Max Moisture	0.040	%	0.040	%
Processing (Melt) Temp	464 to 500	°F	240 to 260	°C
Melt Temperature, Optimum	482	°F	250	°C
Mold Temperature	86 to 266	°F	30 to 130	°C
Mold Temperature, Optimum	176	°F	80	°C
Holding Pressure	8700	psi	60.0	MPa
Back Pressure	As low as possible		As low as possible	
Drying Recommended	yes		yes	
Hold Pressure Time	4.00	s/mm	4.00	s/mm

Notes

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

[2] 10°C/min

[3] Derived from Similar Grade

[4] Assessed (Max)