DuPont™ Crastin®
thermoplastic polyester resin

PRODUCT AND PROPERTY GUIDE

DUPONT®

The miracles of science™

DuPont™ Crastin® thermoplastic polyester resin

DuPont™ Crastin® PBT (polybutylene terephthalate) thermoplastic polyester offers exceptional resistance to heat, creep and solvents, processing ease and good economics for a variety of applications. Among its most notable characteristics:

- Dimensional stability to go where nylon can't with part performance virtually unaffected by changes in ambient humidity. This characteristic is especially valuable in auto lighting bezels, connectors and water valves
- Excellent dielectric and electrical insulation properties, with high arc-resistant grades, make Crastin® especially suited for connectors, relays, switches

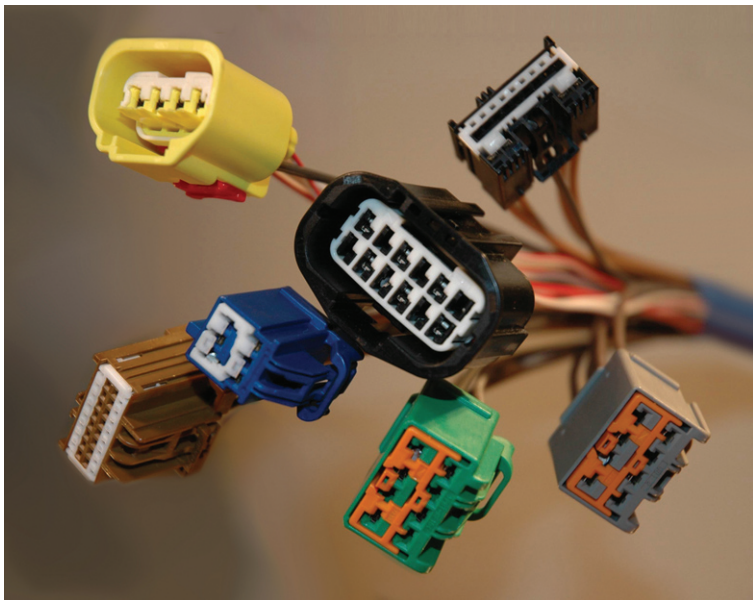
Featured Applications

With outstanding mechanical and physical properties, Crastin® PBT can help deliver greater reliability, durability and a cost advantage over many current materials in electrical and electronic applications, auto lighting bezels, water valves, fiber optic cable jackets.

- Lighting Bezels — Crastin® offers the best combination of heat resistance plus direct metallization ability for cost savings in today's stylish automotive headlamps and taillamps
- Electrical and Electronics — Encapsulation of transformers, motors and solenoids — Crastin® has a unique combination of high flow, high temperature resistance, excellent barrier to moisture and resistance to thermal shocks
- Capacitors and electronic components — Crastin® offers a combination of high flow, laser marking and flammability at low wall thickness together with outstanding adhesion to epoxy resin
- Circuit breakers, relays and contacts — Crastin® delivers low embrittlement at high temperatures, dimensional stability, easy processing and low out-gassing
- Lamp sockets — Color stability, easy processing, high temperature resistance
- Connectors — The Hydrolysis Resistant grades, originally developed to make automotive connectors with superior USCAR test performance, are so versatile that molders and OEMs are using them even where hydrolysis resistance is not critical.

Since 1993 DuPont Engineering Polymers has been reinventing PBT, with new grades that extend important properties and improve flow and processibility.

Crastin® can be processed on conventional injection molding machines using standard industry practices, and many grades designed specifically for blow molding and extrusion are also available.



Crastin® Product Offering

Extrusion	CRASTIN 6129 NC010 CRASTIN 6129C NC010	Unreinforced, high viscosity PBT resin for extrusion and injection molding (Note: Crastin® 6129 is available in Europe and Asia, Crastin® 6129C is available in the Americas).
	CRASTIN 6130 NC010 CRASTIN 6130C NC010	Unreinforced, medium high viscosity PBT resin for extrusion and injection molding (Note: Crastin® 6130 is available in Europe and Asia, Crastin® 6130C is available in the Americas).
	CRASTIN 6131 NC010 CRASTIN 6131C NC010	Unreinforced, low viscosity PBT resin for extrusion and injection molding (Note: Crastin® 6131 is available in Europe and Asia, Crastin® 6131C is available in the Americas).
	CRASTIN 6134 NC010 CRASTIN 6134C NC010	Unreinforced, medium viscosity PBT resin for extrusion and injection molding (Note: Crastin® 6134 is available in Europe and Asia, Crastin® 6134C is available in the Americas).
Unreinforced, Lubricated	CRASTIN S600F10 BK851 CRASTIN S600F10 NC010	Unreinforced, medium high viscosity PBT resin for injection molding.
	CRASTIN S600F20 BK851 CRASTIN S600F20 NC010	Unreinforced, medium viscosity PBT resin for injection molding.
	CRASTIN S600F40 BK851 CRASTIN S600F40 NC010	Unreinforced, low viscosity PBT resin for injection molding.
	CRASTIN S620F20 BK851 CRASTIN S620F20 NC010	Unreinforced, nucleated, medium viscosity PBT resin for fast injection molding.
	CRASTIN CE2055 NC010	Unreinforced, ultra high flow PBT resin for fast injection molding.
Unreinforced, Flame Retardant	CRASTIN S660FR BK507 CRASTIN S660FR NC010	Unreinforced, flame retardant, lubricated PBT resin for injection molding recognized by UL as UL94V-0 at 0.40 mm (0.016 in).
Unreinforced Toughened	CRASTIN ST820 BK503 CRASTIN ST820 NC010	Unreinforced, Super Tough PBT resin for injection molding.
Unreinforced Toughened, Flame Retardant	CRASTIN ST830FR BK507	Super Tough, flame retardant, unreinforced PBT molding resin. It is recognized as UL94V-0 at 0.85 mm (0.033 in).
	CRASTIN ST830FRUV NC010	Toughened, flame retardant, unreinforced PBT molding resin which contains a UV light stabilizer. It is recognized as UL94V-0 at 0.85 mm (0.033 in).
Wear & Friction	CRASTIN S600LF NC010	Unreinforced, Teflon® PTFE powder lubricated PBT for injection molding.
Blow Molding	CRASTIN BM6450XD BK560	Unreinforced, Super Tough, very high viscosity PBT resin for extrusion and blow molding applications.
Improved Hydrolysis Resistance	CRASTIN HR5315HF BK503 CRASTIN HR5315HF NC010	15% glass reinforced PBT with high flow (HF), moderately toughened, hydrolysis resistant (HR) resin. Excellent balance of properties between terminal pullout and impact resistance. Developed for USCAR Class 3 and 4 environments.
	CRASTIN HR5330HF BK503 CRASTIN HR5330HF NC010	30% glass reinforced PBT with high flow (HF), moderately toughened, hydrolysis resistant (HR) resin. Excellent balance of properties between terminal pullout and impact resistance. Developed for USCAR Class 3 and 4 environments.

Low Warp Alloys	CRASTIN LW9020 BK580 CRASTIN LW9020 NC010	20% glass fiber reinforced PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics.
	CRASTIN LW9020FR BK851 CRASTIN LW9020FR NC010	20% glass fiber reinforced, flame retardant PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics and is recognized as UL94V-0 at 1.5 mm (0.059 in).
	CRASTIN LW9030 BK851 CRASTIN LW9030 NC010	30% glass fiber reinforced PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics.
	CRASTIN LW9030FR BK851 CRASTIN LW9030FR NC010	30% glass fiber reinforced, flame retardant PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics and is recognized as UL94V-0 at 1.5 mm (0.059 in).
	CRASTIN LW9320 BK851 CRASTIN LW9320 NC010	20% glass fiber reinforced PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics.
	CRASTIN LW9330 BK851 CRASTIN LW9330 NC010	30% glass fiber reinforced PBT alloy for injection molding with improved surface aesthetics, excellent dimensional stability and low warpage characteristics.
Glass Reinforced	CRASTIN SK601 BK851 CRASTIN SK601 NC010	10% glass fiber reinforced, lubricated PBT resin for injection molding.
	CRASTIN SK602 BK851 CRASTIN SK602 NC010	15% glass fiber reinforced, lubricated PBT resin for injection molding.
	CRASTIN SK603 BK851 CRASTIN SK603 NC010	20% glass fiber reinforced, lubricated PBT resin for injection molding.
	CRASTIN SK605 BK851 CRASTIN SK605 NC010	30% glass fiber reinforced, lubricated PBT resin for injection molding.
	CRASTIN SK608 BK509	45% glass fiber reinforced, lubricated, black PBT resin for injection molding.
	CRASTIN SK609 BK851 CRASTIN SK609 NC010	50% glass fiber reinforced, lubricated PBT resin for injection molding.
Glass Bead	CRASTIN SO653 NC010	20% glass bead filled PBT resin for injection molding. It has isotropic properties and low warpage characteristics.
Glass Reinforced, Improved Impact	CRASTIN T803 BK851 CRASTIN T803 NC010	20% glass fiber reinforced PBT resin for injection molding with improved impact resistance and good processing characteristics.
	CRASTIN T805 BK851 CRASTIN T805 NC010	30% glass fiber reinforced PBT resin for injection molding with improved impact resistance and good processing characteristics.
Reinforced, Flame Retardant	CRASTIN HTI668FR NC010	45% glass and mineral reinforced, modified PBT resin that is recognized as UL94V-0 at 1.0 mm (0.039 in) and has excellent high arc tracking resistance.
Glass Reinforced, Improved Impact, Flame Retardant	CRASTIN T835FRUV NC010	5% glass reinforced, toughened, flame retardant PBT resin for injection molding recognized by UL as UL94V-0 at 0.8 mm (0.031 in).
	CRASTIN T841FR BK851 CRASTIN T841FR NC010	10% glass fiber reinforced, improved impact, flame retardant, PBT resin for injection molding recognized as UL94V-0 at 1.5 mm (0.059 in).
	CRASTIN T843FR BK851 CRASTIN T843FR NC010	20% glass fiber reinforced, improved impact, flame retardant, PBT resin for injection molding recognized as UL94V-0 at 1.5 mm (0.059 in).
	CRASTIN T845FR BK851 CRASTIN T845FR NC010	30% glass fiber reinforced, improved impact, flame retardant, PBT resin for injection molding recognized as UL94V-0 at 1.5 mm (0.059 in).

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					Extrusion			
	Property		**Method**	**Units**	**Crastin® 6129 NC010 Crastin® 6129C NC010**	**Crastin® 6130 NC010 Crastin® 6130C NC010**	**Crastin® 6131 NC010 Crastin® 6131C NC010**	**Crastin® 6134 NC010 Crastin® 6134C NC010**
	Resin Identification		ISO 1043		PBT	PBT	PBT	PBT
	Part Marking Code		ISO 11469		>PBT<	>PBT<	>PBT<	>PBT<
Mechanical	Yield Stress		ISO 527	MPa	58	59	59	59
				kpsi	8.4	8.6	8.6	8.6
	Yield Strain		ISO 527	%	5	8	6	4
	Strain at Break	50mm/min	ISO 527	%	200	110	65	90
	Nominal Strain at Break		ISO 527	%	>50	50	30	45
	Tensile Modulus		ISO 527	MPa	2600	2600	2600	2600
				kpsi	377	377	377	377
	Tensile Creep Modulus	1h	ISO 899	MPa	2600			
				kpsi	377			
		1000h		MPa	1800			
				kpsi	261			
	Flexural Modulus		ISO 178	MPa	2350			
				kpsi	340			
	Flexural Strength		ISO 178	MPa	85		85	85
				kpsi	12.3		12.3	12.3
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
		-30ºC (-22ºF)			4			
		23ºC (73ºF)			5.5	5	4	4
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
		-30ºC (-22ºF)			NB			
		23ºC (73ºF)			NB			
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	115	115	115	115
				F	239	239	239	239
		0.45MPa, Annealed		C	180	180	180	180
				F	356	356	356	356
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	50	50	50	50
				F	122	122	122	122
		1.80MPa, Annealed		C	60	60	60	60
				F	140	140	140	140
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	225
				F	437	437	437	437
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C	0.9	0.9	0.9	
		-40-73°F		E-4/F	0.5	0.5	0.5	
		23-55°C		E-4/C	1.3	1.44	1.44	
		73-130°F		E-4/F	0.72	0.8	0.8	
		55-160°C		E-4/C	1.62	1.62	1.62	
		130-320°F		E-4/F	0.9	0.9	0.9	
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C	0.72	0.72	0.72	
		-40-73°F		E-4/F	0.4	0.4	0.4	
		23-55°C		E-4/C	1.3	1.08	1.08	
		73-130°F		E-4/F	0.72	0.6	0.6	
		55-160°C		E-4/C	1.8	1.44	1.44	
		130-320°F		E-4/F	1.0	0.8	0.8	
	Thermal Conductivity		DIN 51046	W/m K	0.25			
				Btu in/h ft2 F	1.7			
	Vicat Softening Temperature	10N	ISO 306	C	215			
				F	420			
		50N		C	175			
				F	350			
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				
				F				
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C	180			
				F	356			

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Extrusion			
	Property		**Method**	**Units**	**Crastin® 6129 NC010 Crastin® 6129C NC010**	**Crastin® 6130 NC010 Crastin® 6130C NC010**	**Crastin® 6131 NC010 Crastin® 6131C NC010**	**Crastin® 6134 NC010 Crastin® 6134C NC010**
Electrical	Surface Resistivity		IEC 60093	ohm	>1E12			
	Relative Permittivity	50Hz	IEC 60250		3.8			
		1E2 Hz						
		1E3 Hz						
		1E6 Hz			3.2			
	Volume Resistivity		IEC 60093	ohm m	>1E13			
	Dissipation Factor	50Hz	IEC 60250	E-4	20			
		1E2 Hz						
		1E3 Hz						
		1E6 Hz			200			
	Electric Strength	1.0mm	IEC 60243-1	kV/mm	26			
				V/mil	660			
		2.0mm		kV/mm	15			
				V/mil	380			
	CTI		IEC 60112	V				
	CTI		UL 746A	V	>600	600	600	
Flammability	Flammability Classification		IEC 60695-11-10		HB	HB	HB	
	Min. Thickness Tested			mm	0.92	0.81	0.88	
	Flammability Classification		UL94		HB	HB	HB	
	Min. Thickness Tested		UL94	mm	0.92	0.81	0.88	
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%	22			
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm			925			
		1.5mm			960			
		3.0mm			850			
		0.75mm	IEC 60695-2-13	C				
	Glow Wire Ignition Temperature	0.92mm			825			
		1.5mm			825			
		3.0mm			825			
	High Amperage Arc Ignition	0.75mm	UL 746A	arcs				
	Resistance	0.81mm				200		
		0.85mm						
		0.88mm					120	
		0.92mm			120			
		1.5mm					120	
		3.0mm					30	
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s				
		0.81mm				13		
		0.85mm						
		0.88mm					7	
		0.92mm			7			
		1.5mm			15	30	15	
		3.0mm			30	45	2	
		6.0mm						

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					Extrusion			
	Property		Method	Units	Crastin® 6129 NC010 Crastin® 6129C NC010	Crastin® 6130 NC010 Crastin® 6130C NC010	Crastin® 6131 NC010 Crastin® 6131C NC010	Crastin® 6134 NC010 Crastin® 6134C NC010
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm				75		
		0.85mm						
		0.88mm					75	
		0.92mm			75			
	RTI, Impact	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm				75		
		0.85mm						
		0.88mm					75	
		0.92mm			75			
	RTI, Strength	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm				75		
		0.85mm						
		0.88mm					75	
		0.92mm			75			
Other	Density		ISO 1183	kg/m3	1300	1300	1300	1300
				g/cm3	1.30	1.30	1.30	1.30
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa	139			
				kpsi	20			
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%	0.2			
		Immersion 24h	to					
		Saturation, immersed			0.4			
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%	1.5	1.5		
		Parallel, 2.0mm			1.7	1.6		
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	482	482
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	176	176
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm				
				in				
		90MPa, 5x0.30mm		mm	8	11		
				in	0.3	0.4		
		90MPa, 5x0.50mm		mm	26	35		
				in	1	1.4		
		90MPa, 5x0.75mm		mm	60	75		
				in	2.4	3		
		90MPa, 5x1.00mm		mm	95	112		
				in	3.7	4.4		

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					Unreinforced, Lubricated			
	Property		**Method**	**Units**	**Crastin® S600F10 BK851**	**Crastin® S600F10 NC010**	**Crastin® S600F20 BK851**	**Crastin® S600F20 NC010**
	Resin Identification		ISO 1043		PBT	PBT	PBT	PBT
	Part Marking Code		ISO 11469		>PBT<	>PBT<	>PBT<	>PBT<
Mechanical	Yield Stress		ISO 527	MPa	57	57	57	58
				kpsi	8.3	8.3	8.3	8.4
	Yield Strain		ISO 527	%	6	6	6	7
	Strain at Break	50mm/min	ISO 527	%	>50	>50	>50	>50
	Nominal Strain at Break		ISO 527	%	>50	>50	40	40
	Tensile Modulus		ISO 527	MPa	2600	2600	2600	2600
				kpsi	377	377	377	377
	Tensile Creep Modulus	1h	ISO 899	MPa		2600		
				kpsi		377		
		1000h		MPa		1800		1800
				kpsi		261		261
	Flexural Modulus		ISO 178	MPa		2300		2200
				kpsi		330		320
	Flexural Strength		ISO 178	MPa	85	85		85
				kpsi	12.3	12.3		12.3
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
		-30ºC (-22ºF)				4		4
		23ºC (73ºF)			5	5	4.5	5
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
		-30ºC (-22ºF)				NB		NB
		23ºC (73ºF)				NB		NB
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	140	115	140	115
				F	284	239	284	239
		0.45MPa, Annealed		C	180	180	180	180
				F	356	356	356	356
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C		50		50
				F		122		122
		1.80MPa, Annealed		C	60	60	60	60
				F	140	140	140	140
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	225
				F	437	437	437	437
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C		0.9		0.9
		-40-73°F		E-4/F		0.5		0.5
		23-55°C		E-4/C		1.2		1.2
		73-130°F		E-4/F		0.67		0.67
		55-160°C		E-4/C		2.0		2.0
		130-320°F		E-4/F		1.11		1.11
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C		0.8		0.8
		-40-73°F		E-4/F		0.44		0.44
		23-55°C		E-4/C		1.1		1.1
		73-130°F		E-4/F		0.61		0.61
		55-160°C		E-4/C		1.9		1.9
		130-320°F		E-4/F		1.06		1.06
	Thermal Conductivity		DIN 51046	W/m K		0.25		0.25
				Btu in/h ft2 F		1.7		1.7
	Vicat Softening Temperature	10N	ISO 306	C		216		215
				F		420		420
		50N		C		175		175
				F		347		350
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				180
				F				355
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C		180		
				F		355		

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Unreinforced, Lubricated			
	Property		**Method**	**Units**	**Crastin® S600F10 BK851**	**Crastin® S600F10 NC010**	**Crastin® S600F20 BK851**	**Crastin® S600F20 NC010**
Electrical	Surface Resistivity		IEC 60093	ohm		1E15		>1E12
	Relative Permittivity	50Hz	IEC 60250					3.8
		1E2 Hz				3.8		3.8
		1E3 Hz						
		1E6 Hz				3.2		3.2
	Volume Resistivity		IEC 60093	ohm m		>1E13		>1E13
	Dissipation Factor	50Hz	IEC 60250	E-4				20
		1E2 Hz				20		20
		1E3 Hz						
		1E6 Hz				200		200
	Electric Strength	1.0mm	IEC 60243-1	kV/mm		26		26
				V/mil		660		660
		2.0mm		kV/mm		15		
				V/mil		381		
	CTI		IEC 60112	V		600	600	600
	CTI		UL 746A	V		250	250	250
Flammability	Flammability Classification		IEC 60695-11-10		HB	HB	HB	HB
	Min. Thickness Tested			mm	1.5	1.5	1.5	1.5
	Flammability Classification		UL94		HB	HB	HB	HB
	Min. Thickness Tested		UL94	mm	1.5	1.5	1.5	1.5
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%	21	22		22
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C		750		
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm					750	750
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C				
		0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs				
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
		1.5mm				60	60	60
		3.0mm				120	120	120
		6.0mm				120	120	120
	Hot Wire Ignition	0.75mm	UL 746A	s				
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
		1.5mm				15	15	15
		3.0mm				15	15	15
		6.0mm				60	60	60

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					Unreinforced, Lubricated			
	Property		Method	Units	Crastin® S600F10 BK851	Crastin® S600F10 NC010	Crastin® S600F20 BK851	Crastin® S600F20 NC010
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	130	130	130	130
		0.8mm						
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
	RTI, Impact	0.75mm	UL 746B	C	115	115	115	115
		0.8mm						
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
	RTI, Strength	0.75mm	UL 746B	C	120	120	120	120
		0.8mm						
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
Other	Density		ISO 1183	kg/m3	1300	1300	1310	1310
				g/cm3	1.30	1.30	1.31	1.31
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa		139		
				kpsi		20		
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar to	%		0.2		0.2
		Immersion 24h						
		Saturation, immersed				0.5		0.4
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%		1.6		1.6
		Parallel, 2.0mm				1.7		1.7
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm		380		
				in		15		
		90MPa, 5x0.30mm		mm		10		10
				in		0.4		0.4
		90MPa, 5x0.50mm		mm		31		31
				in		1.2		1.2
		90MPa, 5x0.75mm		mm		61		67
				in		2.4		2.6
		90MPa, 5x1.00mm		mm		97		114
				in		3.8		4.5

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					Unreinforced, Lubricated				
	Property		**Method**	**Units**	**Crastin® S600F40 BK851**	**Crastin® S600F40 NC010**	**Crastin® S620F20 BK851**	**Crastin® S620F20 NC010**	**Crastin® CE2055 NC010**
	Resin Identification		ISO 1043		PBT	PBT	PBT	PBT	PBT
	Part Marking Code		ISO 11469		>PBT<	>PBT<	>PBT<	>PBT<	>PBT<
Mechanical	Yield Stress		ISO 527	MPa	58	58	59	59	60
				kpsi	8.4	8.4	8.6	8.6	8.7
	Yield Strain		ISO 527	%	6	6	8	8	10
	Strain at Break	50mm/min	ISO 527	%	30	>50	>50	>50	30
	Nominal Strain at Break		ISO 527	%	20	30	30	30	13
	Tensile Modulus		ISO 527	MPa	2600	2600	2600	2600	2600
				kpsi	377	377	377	377	380
	Tensile Creep Modulus	1h	ISO 899	MPa		2600		2600	
				kpsi		377		377	
		1000h		MPa		1800		1800	
				kpsi		260		261	
	Flexural Modulus		ISO 178	MPa		2400			
				kpsi		341			
	Flexural Strength		ISO 178	MPa	85	85	88	88	82
				kpsi	12.3	12.3	12.8	12.8	11.9
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2					
		-30ºC (-22ºF)				4		3.5	
		23ºC (73ºF)			4.5	4	4	4.5	3.5
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2					
		-30ºC (-22ºF)				NB		NB	
		23ºC (73ºF)				NB		NB	
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	150	115	145	145	150
				F	302	239	293	293	302
		0.45MPa, Annealed		C	180	180	180	180	
				F	356	356	356	356	
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C		50		60	55
				F		122		140	131
		1.80MPa, Annealed		C	60	60	60	60	
				F	140	140	140	140	
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	225	225
				F	437	437	437	437	437
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C					
		-40-73°F		E-4/F					
		23-55°C		E-4/C		1.2		1.3	
		73-130°F		E-4/F		0.67		0.72	
		55-160°C		E-4/C					
		130-320°F		E-4/F					
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C					
		-40-73°F		E-4/F					
		23-55°C		E-4/C		1.1		1.3	
		73-130°F		E-4/F		0.61		0.72	
		55-160°C		E-4/C					
		130-320°F		E-4/F					
	Thermal Conductivity		DIN 51046	W/m K		0.25		0.25	
				Btu in/h ft2 F		0.95		1.7	
	Vicat Softening Temperature	10N	ISO 306	C		215		215	
				F		420		420	
		50N		C		175		175	
				F		350		350	
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C		180		180	
				F		355		355	
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C					
				F					

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Unreinforced, Lubricated				
	Property		**Method**	**Units**	**Crastin® S600F40 BK851**	**Crastin® S600F40 NC010**	**Crastin® S620F20 BK851**	**Crastin® S620F20 NC010**	**Crastin® CE2055 NC010**
Electrical	Surface Resistivity		IEC 60093	ohm		>1E12		>1E12	
	Relative Permittivity	50Hz	IEC 60250			3.8			
		1E2 Hz				3.8		3.8	
		1E3 Hz							
		1E6 Hz				3.2		3.2	
	Volume Resistivity		IEC 60093	ohm m		>1E13		>1E13	
	Dissipation Factor	50Hz	IEC 60250	E-4		20			
		1E2 Hz				20		20	
		1E3 Hz							
		1E6 Hz				200		200	
	Electric Strength	1.0mm	IEC 60243-1	kV/mm		26		26	
				V/mil		660		660	
		2.0mm		kV/mm		26		15	
				V/mil		660		380	
	CTI		IEC 60112	V		600	600	600	
	CTI		UL 746A	V		250	250	250	
Flammability	Flammability Classification		IEC 60695-11-10		HB	HB	HB	HB	
	Min. Thickness Tested			mm	1.5	1.5	1.5	1.5	
	Flammability Classification		UL94		HB	HB	HB	HB	
	Min. Thickness Tested		UL94	mm	1.5	1.5	1.5	1.5	
	5V Rating		IEC 60695-11-20						
	5V Min. Thickness Tested			mm					
	5V Rating		UL94						
	5V Min. Thickness Tested		UL94	mm					
	Oxygen Index		ISO 4589-1/-2	%		22		22	
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C			750	750	
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C					
		0.92mm							
		1.5mm							
		3.0mm				750			
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C					
		0.92mm							
		1.5mm							
		3.0mm							
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs					
		0.81mm							
		0.85mm							
		0.88mm							
		0.92mm							
		1.5mm				60	60	60	
		3.0mm				120	60	60	
		6.0mm				120	60	60	
	Hot Wire Ignition	0.75mm	UL 746A	s					
		0.81mm							
		0.85mm							
		0.88mm							
		0.92mm							
		1.5mm				15	15	15	
		3.0mm				15	15	15	
		6.0mm				60	30	30	

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					Unreinforced, Lubricated				
	Property		**Method**	**Units**	**Crastin® S600F40 BK851**	**Crastin® S600F40 NC010**	**Crastin® S620F20 BK851**	**Crastin® S620F20 NC010**	**Crastin® CE2055 NC010**
Temperature Index	RTI, Electrical	0.75mm 0.8mm 0.81mm 0.85mm 0.88mm 0.92mm	UL 746B	C	130	130	130	130	
	RTI, Impact	0.75mm 0.8mm 0.81mm 0.85mm 0.88mm 0.92mm	UL 746B	C	115	115	115	115	
	RTI, Strength	0.75mm 0.8mm 0.81mm 0.85mm 0.88mm 0.92mm	UL 746B	C	120	120	120	120	
Other	Density		ISO 1183	kg/m3 g/cm3	1310 1.31	1310 1.31	1310 1.31	1310 1.31	1310 1.31
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa kpsi				139 20	
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa kpsi					
	Hardness, Rockwell	Scale R	ISO 2039/2						
	Water Absorption	Equilibrium 50%RH Immersion 24h Saturation, immersed	ISO 62, Similar to	%		0.2 0.4		0.2 0.4	
	Molding Shrinkage	Normal, 2.0mm Parallel, 2.0mm	ISO 294-4	%		1.8 1.95		1.6 1.7	1.8 2.0
Processing	Melt Temperature Range			C F	240-260 465-500	240-260 465-500	240-260 465-500	240-260 465-500	240-260 465-500
	Melt Temperature Optimum			C F	250 480	250 480	250 480	250 480	250 480
	Mold Temperature Range			C F	30-130 85-265	30-130 85-265	30-130 85-265	30-130 85-265	30-130 85-265
	Mold Temperature Optimum			C F	80 175	80 175	80 175	80 175	80 175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4	2-4
	Drying Temperature			C F	110-130 230-265	110-130 230-265	110-130 230-265	110-130 230-265	110-130 230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm in				425 16.7	
		90MPa, 5x0.30mm		mm in				10 0.4	
		90MPa, 5x0.50mm		mm in				37 1.5	
		90MPa, 5x0.75mm		mm in				78 3.1	
		90MPa, 5x1.00mm		mm in				124 4.9	

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Unreinforced, FR		Unreinforced, Toughened	
	Property	**Method**	**Units**	**Crastin® S660FR BK507**	**Crastin® S660FR NC010**	**Crastin® ST820 BK503**	**Crastin® ST820 NC010**
	Resin Identification	ISO 1043		PBT-FR(17)	PBT-FR(17)	PBT-HI	PBT-HI
	Part Marking Code	ISO 11469		>PBT-FR(17)<	>PBT-FR(17)<	>PBT-HI<	>PBT-HI<
Mechanical	Yield Stress	ISO 527	MPa	52	52	36	38
			kpsi	7.5	7.5	5.2	5.5
	Yield Strain	ISO 527	%	3.5	3.5	7	7
	Strain at Break 50mm/min	ISO 527	%			130	150
	Nominal Strain at Break	ISO 527	%	10	10	>50	>50
	Tensile Modulus	ISO 527	MPa	2900	2800	1600	1700
			kpsi	420	406	230	247
	Tensile Creep Modulus 1h	ISO 899	MPa				
			kpsi				
	1000h		MPa				
			kpsi				
	Flexural Modulus	ISO 178	MPa	2700	2700	1500	1550
			kpsi	384	384	220	225
	Flexural Strength	ISO 178	MPa	85	85	50	50
			kpsi	12	12	7.3	7.3
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2		4		10
	-30ºC (-22ºF)			3.5	4	10	10
	23ºC (73ºF)			4	4	85	85
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2		55		
	-30ºC (-22ºF)				65	NB	NB
	23ºC (73ºF)			60	70	NB	NB
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C	165	165	100	100
			F	329	329	212	212
	0.45MPa, Annealed		C			145	145
			F			293	293
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C	55	55	50	50
			F	131	131	122	122
	1.80MPa, Annealed		C				
			F				
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	225	225	225	225
			F	437	437	437	437
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C				1.9
	73-130°F		E-4/F				1.1
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C				1.9
	73-130°F		E-4/F				1.1
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	Thermal Conductivity	DIN 51046	W/m K				
			Btu in/h ft2 F				
	Vicat Softening Temperature 10N	ISO 306	C				216
			F				420
	50N		C				123
			F				253
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C				
			F				
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C				
			F				

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					Unreinforced, FR		Unreinforced, Toughened	
	Property		**Method**	**Units**	**Crastin® S660FR BK507**	**Crastin® S660FR NC010**	**Crastin® ST820 BK503**	**Crastin® ST820 NC010**
Electrical	Surface Resistivity		IEC 60093	ohm				1E15
	Relative Permittivity	50Hz	IEC 60250					
		1E2 Hz						
		1E3 Hz						3.5
		1E6 Hz						3.4
	Volume Resistivity		IEC 60093	ohm m				>1E13
	Dissipation Factor	50Hz	IEC 60250	E-4				
		1E2 Hz						
		1E3 Hz						30
		1E6 Hz						200
	Electric Strength	1.0mm	IEC 60243-1	kV/mm				
				V/mil				
		2.0mm		kV/mm				23
				V/mil				600
	CTI		IEC 60112	V				
	CTI		UL 746A	V				
Flammability	Flammability Classification		IEC 60695-11-10		V-0	V-0		HB
	Min. Thickness Tested			mm	0.4	0.4		0.8
	Flammability Classification		UL94		V-0	V-0		HB
	Min. Thickness Tested		UL94	mm	0.4	0.4		0.8
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%		30		19
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				700
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C	960	960		
		0.92mm						
		1.5mm						
		3.0mm						
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C	700	700		
		0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs		>150		
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
		1.5mm						
		3.0mm						
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s		13		
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
		1.5mm				12		
		3.0mm				17		
		6.0mm						

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					Unreinforced, FR		Unreinforced, Toughened	
	Property		**Method**	**Units**	**Crastin® S660FR BK507**	**Crastin® S660FR NC010**	**Crastin® ST820 BK503**	**Crastin® ST820 NC010**
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	140	140		
		0.8mm						75
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
	RTI, Impact	0.75mm	UL 746B	C	120	120		
		0.8mm						75
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
	RTI, Strength	0.75mm	UL 746B	C	140	140		
		0.8mm						75
		0.81mm						
		0.85mm						
		0.88mm						
		0.92mm						
Other	Density		ISO 1183	kg/m3	1470	1470	1220	1220
				g/cm3	1.47	1.47	1.22	1.22
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				78
				kpsi				11
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				78
				kpsi				11
	Hardness, Rockwell	Scale R	ISO 2039/2			114		104
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%				0.12
		Immersion 24h	to					
		Saturation, immersed						0.31
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%	2.0	1.8	1.7	1.8
		Parallel, 2.0mm			1.9	1.9	1.8	1.9
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm				300
				in				11.8
		90MPa, 5x0.30mm		mm				7
				in				0.3
		90MPa, 5x0.50mm		mm				18
				in				0.7
		90MPa, 5x0.75mm		mm				47
				in				1.9
		90MPa, 5x1.00mm		mm				77
				in				3

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Unreinforced, Toughened, FR		Wear & Friction	Blow Molding
	Property		**Method**	**Units**	**Crastin® ST830FR BK507**	**Crastin® ST830FRUV NC010**	**Crastin® S600LF NC010**	**Crastin® BM6450XD BK560**
	Resin Identification		ISO 1043		PBT-HIFR(17)	PBT-HIFR(17)	PBT	PBT-F
	Part Marking Code		ISO 11469		>PBT-HIFR(17)<	>PBT-HIFR(17)<	>PBT<	>PBT-F<
Mechanical	Yield Stress		ISO 527	MPa	40	40	58	34
				kpsi	5.8	5.8	8.4	4.9
	Yield Strain		ISO 527	%	10	9	7.5	9
	Strain at Break	50mm/min	ISO 527	%			25	>100
	Nominal Strain at Break		ISO 527	%	50	45	15	>50
	Tensile Modulus		ISO 527	MPa	2100	2200	2700	1600
				kpsi	305	320	392	230
	Tensile Creep Modulus	1h	ISO 899	MPa				
				kpsi				
		1000h		MPa				
				kpsi				
	Flexural Modulus		ISO 178	MPa	1900	2100		1600
				kpsi	275	305		230
	Flexural Strength		ISO 178	MPa			80	50
				kpsi			11.6	7.3
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2	10	10		
		-30ºC (-22ºF)				10	3	
		23ºC (73ºF)			90	65	4	120
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2		350		
		-30ºC (-22ºF)			350	350	100	NB
		23ºC (73ºF)			NB	NB	145	NB
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	125	125	150	80
				F	255	255	302	176
		0.45MPa, Annealed		C			185	130
				F			365	265
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	55	55	55	50
				F	130	130	131	120
		1.80MPa, Annealed		C				
				F				
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	220
				F	437	437	440	430
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	Thermal Conductivity		DIN 51046	W/m K				
				Btu in/h ft2 F				
	Vicat Softening Temperature	10N	ISO 306	C			215	
				F			420	
		50N		C			175	
				F			350	
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C			180	
				F			355	
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C				
				F				

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					Unreinforced, Toughened, FR		Wear & Friction	Blow Molding
	Property		Method	Units	Crastin® ST830FR BK507	Crastin® ST830FRUV NC010	Crastin® S600LF NC010	Crastin® BM6450XD BK560
Electrical	Surface Resistivity		IEC 60093	ohm				
	Relative Permittivity	50Hz	IEC 60250					
		1E2 Hz						
		1E3 Hz						
		1E6 Hz						
	Volume Resistivity		IEC 60093	ohm m				
	Dissipation Factor	50Hz	IEC 60250	E-4				
		1E2 Hz						
		1E3 Hz						
		1E6 Hz						
	Electric Strength	1.0mm	IEC 60243-1	kV/mm				
				V/mil				
		2.0mm		kV/mm				
				V/mil				
	CTI		IEC 60112	V				
	CTI		UL 746A	V	>600	>600		
Flammability	Flammability Classification		IEC 60695-11-10		V-0	V-0	HB	
	Min. Thickness Tested			mm	0.85	0.85	0.75	
	Flammability Classification		UL94		V-0	V-0		
	Min. Thickness Tested		UL94	mm	0.85	0.85		
	5V Rating		IEC 60695-11-20		5VA			
	5V Min. Thickness Tested			mm	2.7			
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%				
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm						
		0.75mm	IEC 60695-2-13	C				
	Glow Wire Ignition Temperature	0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition	0.75mm	UL 746A	arcs				
	Resistance	0.81mm						
		0.85mm				>150		
		0.88mm						
		0.92mm						
		1.5mm				>150		
		3.0mm				>150		
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s				
		0.81mm						
		0.85mm				11		
		0.88mm						
		0.92mm						
		1.5mm				21		
		3.0mm				41		
		6.0mm						

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					Unreinforced, Toughened, FR		Wear & Friction	Blow Molding
	Property		**Method**	**Units**	**Crastin® ST830FR BK507**	**Crastin® ST830FRUV NC010**	**Crastin® S600LF NC010**	**Crastin® BM6450XD BK560**
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm						
		0.85mm			130	130		
		0.88mm						
		0.92mm						
	RTI, Impact	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm						
		0.85mm			130	130		
		0.88mm						
		0.92mm						
	RTI, Strength	0.75mm	UL 746B	C				
		0.8mm						
		0.81mm						
		0.85mm			130	130		
		0.88mm						
		0.92mm						
Other	Density		ISO 1183	kg/m3	1370	1370	1320	1210
				g/cm3	1.37	1.37	1.32	1.21
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				
				kpsi				
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%			0.2	
		Immersion 24h	to					
		Saturation, immersed					0.4	
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%	1.6	1.6	2.2	
		Parallel, 2.0mm			2.0	2.0	2.2	
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	230-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.02
	Snake Flow	100MPa, 7 x 2mm		mm				
				in				
		90MPa, 5x0.30mm		mm				
				in				
		90MPa, 5x0.50mm		mm				
				in				
		90MPa, 5x0.75mm		mm				
				in				
		90MPa, 5x1.00mm		mm				
				in				

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Improved Hydrolysis Resistance			
	Property		Method	Units	Crastin® HR5315HF BK503	Crastin® HR5315HF NC010	Crastin® HR5330HF BK503	Crastin® HR5330HF NC010
	Resin Identification		ISO 1043		PBT-IGF15	PBT-IGF15	PBT-IGF30	PBT-IGF30
	Part Marking Code		ISO 11469		>PBT-IGF15<	>PBT-IGF15<	>PBT-IGF30<	>PBT-IGF30<
Mechanical	Stress at Break		ISO 527	MPa	92	95	120	132
				kpsi	13.3	13.8	17.4	19.1
	Strain at Break		ISO 527	%	3	3	3.5	3.5
	Tensile Modulus		ISO 527	MPa	5200	5200	8400	8400
				kpsi	750	750	1220	1220
	Tensile Creep Modulus	1h	ISO 899	MPa				
				kpsi				
		1000h		MPa				
				kpsi				
	Flexural Modulus		ISO 178	MPa	4700	4700	7500	7700
				kpsi	680	680	1090	1120
	Flexural Strength		ISO 178	MPa		150		200
				kpsi		21.8		29.0
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
		-30ºC (-22ºF)			6	7	9	11.5
		23ºC (73ºF)			10	10	11	13
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
		-30ºC (-22ºF)						
		23ºC (73ºF)			50	60	65	75
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	220	220	221	221
				F	430	430	430	430
		0.45MPa, Annealed		C				
				F				
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	200	200	207	207
				F	390	390	405	405
		1.80MPa, Annealed		C				
				F				
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	225
				F	437	437	437	437
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	Thermal Conductivity		DIN 51046	W/m K				
				Btu in/h ft2 F				
	Vicat Softening Temperature	10N	ISO 306	C				
				F				
		50N		C				
				F				
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				
				F				
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C				
				F				

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Improved Hydrolysis Resistance			
	Property		Method	Units	Crastin® HR5315HF BK503	Crastin® HR5315HF NC010	Crastin® HR5330HF BK503	Crastin® HR5330HF NC010
Electrical	Surface Resistivity		IEC 60093	ohm	1E17			6E15
	Relative Permittivity	50Hz	IEC 60250					
		1E2 Hz						
		1E3 Hz			3.8			
		1E6 Hz			3.7			
	Volume Resistivity		IEC 60093	ohm m	>1E13			1E15
	Dissipation Factor	50Hz	IEC 60250	E-4				
		1E2 Hz						
		1E3 Hz			30			70
		1E6 Hz			150			200
	Electric Strength	1.0mm	IEC 60243-1	kV/mm				
				V/mil				
		2.0mm		kV/mm				
				V/mil				
	CTI		IEC 60112	V	325			
	CTI		UL 746A	V				
Flammability	Flammability Classification		IEC 60695-11-10				HB	HB
	Min. Thickness Tested			mm			0.75	0.75
	Flammability Classification		UL94				HB	HB
	Min. Thickness Tested		UL94	mm			0.75	0.75
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%	20			
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm						
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C				
		0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs				
		1.5mm						
		3.0mm						
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s				
		1.5mm						
		3.0mm						
		6.0mm						

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					Improved Hydrolysis Resistance			
	Property		Method	Units	Crastin® HR5315HF BK503	Crastin® HR5315HF NC010	Crastin® HR5330HF BK503	Crastin® HR5330HF NC010
Temperature Index	RTI, Electrical	0.75mm 0.8mm 1.5mm	UL 746B	C				
	RTI, Impact	0.75mm 0.8mm 1.5mm 3.0mm	UL 746B	C				
	RTI, Strength	0.75mm 0.8mm 1.5mm 2.0mm 3.0mm	UL 746B	C				
Other	Density		ISO 1183	kg/m3 g/cm3	1370 1.37	1370 1.37	1500 1.50	1500 1.50
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa kpsi				
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2		117	115		
	Water Absorption	Equilibrium 50%RH Immersion 24h Saturation, immersed	ISO 62, Similar to	%	 0.08			
	Molding Shrinkage	Normal, 2.0mm Parallel, 2.0mm	ISO 294-4	%	1.1 0.5	1.1 0.5		
Processing	Melt Temperature Range			C F	240-260 465-500	240-260 465-500	240-260 465-500	240-260 465-500
	Melt Temperature Optimum			C F	250 480	250 480	250 480	250 480
	Mold Temperature Range			C F	30-130 85-265	30-130 85-265	30-130 85-265	30-130 85-265
	Mold Temperature Optimum			C F	80 175	80 175	80 175	80 175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C F	110-130 230-265	110-130 230-265	110-130 230-265	110-130 230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm in				
		90MPa, 5x0.30mm		mm in				
		90MPa, 5x0.50mm		mm in				
		90MPa, 5x0.75mm		mm in				
		90MPa, 5x1.00mm		mm in				

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					Low Warp Alloys		
	Property	Method	Units	Crastin® LW9020 BK580	Crastin® LW9020 NC010	Crastin® LW9020FR BK851	Crastin® LW9020FR NC010
	Resin Identification	ISO 1043		PBT+ASA-GF20	PBT+ASA-GF20	PBT+ASA-GF20FR(17)	PBT+ASA-GF20FR(17)
	Part Marking Code	ISO 11469		>PBT+ASA-GF20<	>PBT+ASA-GF20<	>PBT+ASA-GF20FR(17)<	>PBT+ASA-GF20FR(17)<
Mechanical	Stress at Break	ISO 527	MPa	108	110	100	110
			kpsi	15.7	16.0	14.5	16.0
	Strain at Break	ISO 527	%	2.5	2.9	2	2
	Tensile Modulus	ISO 527	MPa	7000	7000	7800	8500
			kpsi	1015	1015	1130	1230
	Tensile Creep Modulus 1h	ISO 899	MPa		6500		7500
			kpsi		940		1090
	1000h		MPa		4800		6000
			kpsi		700		870
	Flexural Modulus	ISO 178	MPa	6200	6300		
			kpsi	900	910		
	Flexural Strength	ISO 178	MPa	160	170	140	155
			kpsi	23.2	24.6	20.3	22.6
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
	-30ºC (-22ºF)				7.5		6.5
	23ºC (73ºF)			7	9.5	6.5	7
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
	-30ºC (-22ºF)				43		35
	23ºC (73ºF)			50	60	35	40
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C	205	210		215
			F	401	410		419
	0.45MPa, Annealed		C				
			F				
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C	150	160	170	175
			F	302	320	338	347
	1.80MPa, Annealed		C				
			F				
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	225	225	225	225
			F	437	437	437	437
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		1.0		1.0
	73-130°F		E-4/F		0.56		0.56
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		0.3		0.3
	73-130°F		E-4/F		0.17		0.17
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	Thermal Conductivity	DIN 51046	W/m K		0.25		0.25
			Btu in/h ft2 F		1.7		1.7
	Vicat Softening Temperature 10N	ISO 306	C		214		215
			F		417		419
	50N		C		147		145
			F		297		293
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C				
			F				
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C		180		180
			F		355		355

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys		
	Property	Method	Units	Crastin® LW9020 BK580	Crastin® LW9020 NC010	Crastin® LW9020FR BK851	Crastin® LW9020FR NC010
Electrical	Surface Resistivity	IEC 60093	ohm		1E14		1E14
	Relative Permittivity 50Hz	IEC 60250					
	1E2 Hz				3.6		3.7
	1E3 Hz						
	1E6 Hz				3.4		3.5
	Volume Resistivity	IEC 60093	ohm m		>1E13		>1E13
	Dissipation Factor 50Hz	IEC 60250	E-4				
	1E2 Hz				30		30
	1E3 Hz						
	1E6 Hz				180		150
	Electric Strength 1.0mm	IEC 60243-1	kV/mm		35		29
			V/mil		890		735
	2.0mm		kV/mm		20		20
			V/mil		510		508
	CTI	IEC 60112	V		550		300
	CTI	UL 746A	V		500		350
Flammability	Flammability Classification	IEC 60695-11-10		HB	HB	V-0	V-0
	Min. Thickness Tested		mm	1.5	1.5	1.5	1.5
	Flammability Classification	UL94		HB	HB	V-0	V-0
	Min. Thickness Tested	UL94	mm	1.5	1.5	1.5	1.5
	5V Rating	IEC 60695-11-20					
	5V Min. Thickness Tested		mm				
	5V Rating	UL94					
	5V Min. Thickness Tested	UL94	mm				
	Oxygen Index	ISO 4589-1/-2	%		19		27
	Glow Wire Flammability Index 3.0mm	IEC 60695-2-1	C		650		960
	Glow Wire Flammability Index 0.75mm	IEC 60695-2-12	C				
	0.92mm						
	1.5mm						
	3.0mm						
	0.75mm	IEC 60695-2-13	C				
	Glow Wire Ignition Temperature 0.92mm						
	1.5mm						
	3.0mm						
	High Amperage Arc Ignition 0.75mm	UL 746A	arcs		33		
	Resistance 1.5mm				27		20
	3.0mm				26		21
	6.0mm						20
	Hot Wire Ignition 0.75mm	UL 746A	s		24		
	1.5mm				126		39
	3.0mm				93		70
	6.0mm						150

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys			
	Property		Method	Units	Crastin® LW9020 BK580	Crastin® LW9020 NC010	Crastin® LW9020FR BK851	Crastin® LW9020FR NC010
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	130	130	140	140
		0.8mm						
		1.5mm						
	RTI, Impact	0.75mm	UL 746B	C	125	125	115	115
		0.8mm						
		1.5mm			125	125	115	115
		3.0mm			130	130	120	120
	RTI, Strength	0.75mm	UL 746B	C	130	130	120	120
		0.8mm						
		1.5mm					120	120
		2.0mm						
		3.0mm					130	130
Other	Density		ISO 1183	kg/m3	1350	1350	1500	1520
				g/cm3	1.35	1.35	1.50	1.52
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				
				kpsi				
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa		162		160
				kpsi		24		23
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%		0.26		0.23
		Immersion 24h	to					
		Saturation, immersed				0.78		0.78
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%		0.65		0.75
		Parallel, 2.0mm				0.35		0.4
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm		425		420
				in		16.7		16.5
		90MPa, 5x0.30mm		mm		13		11
				in		0.5		0.4
		90MPa, 5x0.50mm		mm		41		36
				in		1.6		1.4
		90MPa, 5x0.75mm		mm		84		73
				in		3.3		2.9
		90MPa, 5x1.00mm		mm		129		113
				in		5.1		4.4

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys			
	Property	**Method**	**Units**	**Crastin® LW9030 BK851**	**Crastin® LW9030 NC010**	**Crastin® LW9030FR BK851**	**Crastin® LW9030FR NC010**
	Resin Identification	ISO 1043		PBT+ASA-GF30	PBT+ASA-GF30	PBT+ASA-GF30FR(17)	PBT+ASA-GF30FR(17)
	Part Marking Code	ISO 11469		>PBT+ASA-GF30<	>PBT+ASA-GF30<	>PBT+ASA-GF30FR(17)<	>PBT+ASA-GF30FR(17)<
Mechanical	Stress at Break	ISO 527	MPa	125	130	115	125
			kpsi	18.1	18.9	16.7	18.1
	Strain at Break	ISO 527	%	2	2.5	1.7	1.8
	Tensile Modulus	ISO 527	MPa	9200	9500	10200	10500
			kpsi	1330	1380	1480	1520
	Tensile Creep Modulus 1h	ISO 899	MPa		9000		9500
			kpsi		1300		1380
	1000h		MPa		7300		7400
			kpsi		1606		1070
	Flexural Modulus	ISO 178	MPa	8500	8500		
			kpsi	1230	1230		
	Flexural Strength	ISO 178	MPa	180	190	160	175
			kpsi	26.1	27.6	23.2	24.7
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
	-30ºC (-22ºF)			7	9		8
	23ºC (73ºF)			9	10	7	8
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
	-30ºC (-22ºF)			45	65		40
	23ºC (73ºF)			50	60	35	40
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C	210	215		220
			F	410	419		428
	0.45MPa, Annealed		C				
			F				
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C	170	175		190
			F	338	347		374
	1.80MPa, Annealed		C				
			F				
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	225	225	225	225
			F	437	437	437	437
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		1.0		0.8
	73-130°F		E-4/F		0.56		0.44
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		0.25		0.25
	73-130°F		E-4/F		0.14		0.14
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	Thermal Conductivity	DIN 51046	W/m K		0.26		0.26
			Btu in/h ft2 F		1.8		1.8
	Vicat Softening Temperature 10N	ISO 306	C		214		215
			F		417		419
	50N		C		150		150
			F		302		302
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C				
			F				
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C		180		180
			F		355		355

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys		
	Property	Method	Units	Crastin® LW9030 BK851	Crastin® LW9030 NC010	Crastin® LW9030FR BK851	Crastin® LW9030FR NC010
Electrical	Surface Resistivity	IEC 60093	ohm		1E14		1E14
	Relative Permittivity 50Hz	IEC 60250					
	1E2 Hz				3.8		3.8
	1E3 Hz						
	1E6 Hz				3.6		3.6
	Volume Resistivity	IEC 60093	ohm m		>1E13		>1E13
	Dissipation Factor 50Hz	IEC 60250	E-4				
	1E2 Hz				30		30
	1E3 Hz						
	1E6 Hz				170		150
	Electric Strength 1.0mm	IEC 60243-1	kV/mm		36		28
			V/mil		915		710
	2.0mm		kV/mm		21		20
			V/mil		535		508
	CTI	IEC 60112	V		550		375
	CTI	UL 746A	V		500		300
Flammability	Flammability Classification	IEC 60695-11-10		HB	HB	V-0	V-0
	Min. Thickness Tested		mm	1.5	1.5	1.5	1.5
	Flammability Classification	UL94		HB	HB	V-0	V-0
	Min. Thickness Tested	UL94	mm	1.5	1.5	1.5	1.5
	5V Rating	IEC 60695-11-20				5VA	
	5V Min. Thickness Tested		mm			2.0	
	5V Rating	UL94				5VA	
	5V Min. Thickness Tested	UL94	mm			2.0	
	Oxygen Index	ISO 4589-1/-2	%	20	19		27
	Glow Wire Flammability Index 3.0mm	IEC 60695-2-1	C		650		960
	Glow Wire Flammability Index 0.75mm	IEC 60695-2-12	C				
	0.92mm						
	1.5mm						
	3.0mm						
	0.75mm	IEC 60695-2-13	C				
	Glow Wire Ignition Temperature 0.92mm						
	1.5mm						
	3.0mm						
	High Amperage Arc Ignition 0.75mm	UL 746A	arcs				
	Resistance 1.5mm				25		38
	3.0mm				26		18
	6.0mm				17		18
	Hot Wire Ignition 0.75mm	UL 746A	s				
	1.5mm				34		36
	3.0mm				132		69
	6.0mm				150		144

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys			
	Property		**Method**	**Units**	**Crastin® LW9030 BK851**	**Crastin® LW9030 NC010**	**Crastin® LW9030FR BK851**	**Crastin® LW9030FR NC010**
		0.8mm						
		1.5mm						
	RTI, Impact	0.75mm	UL 746B	C	125	125	125	125
		0.8mm						
		1.5mm			125	125	125	125
		3.0mm			130	130	130	130
	RTI, Strength	0.75mm	UL 746B	C	130	130	130	130
		0.8mm						
		1.5mm					130	130
		2.0mm					130	
		3.0mm					140	140
Other	Density		ISO 1183	kg/m3	1440	1440	1550	1570
				g/cm3	1.44	1.44	1.55	1.57
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				
				kpsi				
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa		175		170
				kpsi		25		25
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%		0.24		0.21
		Immersion 24h	to					
		Saturation, immersed				0.72		0.72
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%		0.65		0.75
		Parallel, 2.0mm				0.25		0.3
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm		400		380
				in		15.7		15
		90MPa, 5x0.30mm		mm		11		10
				in		0.4		0.4
		90MPa, 5x0.50mm		mm		38		36
				in		1.5		1.4
		90MPa, 5x0.75mm		mm		70		70
				in		2.8		2.8
		90MPa, 5x1.00mm		mm		110		107
				in		4.3		4.2

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Low Warp Alloys			
	Property		Method	Units	Crastin® LW9320 BK851	Crastin® LW9320 NC010	Crastin® LW9330 BK851	Crastin® LW9330 NC010
	Resin Identification		ISO 1043		PBT+SAN-GF20	PBT+SAN-GF20	PBT+SAN-GF30	PBT+SAN-GF30
	Part Marking Code		ISO 11469		>PBT+SAN-GF20<	>PBT+SAN-GF20<	>PBT+SAN-GF30<	>PBT+SAN-GF30<
Mechanical	Stress at Break		ISO 527	MPa	115	120	133	135
				kpsi	16.7	17.4	19.3	19.6
	Strain at Break		ISO 527	%	2.3	2.5	2.2	2.3
	Tensile Modulus		ISO 527	MPa	7300	7400	9600	9800
				kpsi	1060	1070	1390	1420
	Tensile Creep Modulus	1h	ISO 899	MPa				
				kpsi				
		1000h		MPa				
				kpsi				
	Flexural Modulus		ISO 178	MPa		6500		8400
				kpsi		940		1220
	Flexural Strength		ISO 178	MPa				
				kpsi				
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				9
		-30ºC (-22ºF)				8		
		23ºC (73ºF)			7	8.5	8	9
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				50
		-30ºC (-22ºF)				50		
		23ºC (73ºF)			45	55	50	55
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C				
				F				
		0.45MPa, Annealed		C				
				F				
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	165	175		185
				F	329	347		365
		1.80MPa, Annealed		C				
				F				
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	225	225	225	225
				F	437	437	437	437
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C				
		73-130°F		E-4/F				
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	Thermal Conductivity		DIN 51046	W/m K				
				Btu in/h ft2 F				
	Vicat Softening Temperature	10N	ISO 306	C				
				F				
		50N		C				
				F				
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				
				F				
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C				
				F				

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					Low Warp Alloys			
	Property		Method	Units	Crastin® LW9320 BK851	Crastin® LW9320 NC010	Crastin® LW9330 BK851	Crastin® LW9330 NC010
Electrical	Surface Resistivity		IEC 60093	ohm				
	Relative Permittivity	50Hz	IEC 60250					
		1E2 Hz						
		1E3 Hz						
		1E6 Hz						
	Volume Resistivity		IEC 60093	ohm m				
	Dissipation Factor	50Hz	IEC 60250	E-4				
		1E2 Hz						
		1E3 Hz						
		1E6 Hz						
	Electric Strength	1.0mm	IEC 60243-1	kV/mm				
				V/mil				
		2.0mm		kV/mm				
				V/mil				
	CTI		IEC 60112	V				
	CTI		UL 746A	V		500		450
Flammability	Flammability Classification		IEC 60695-11-10		HB	HB	HB	HB
	Min. Thickness Tested			mm	0.75	0.75	0.75	0.75
	Flammability Classification		UL94		HB	HB	HB	HB
	Min. Thickness Tested		UL94	mm	0.75	0.75	0.75	0.75
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%				
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C			700	700
		0.92mm						
		1.5mm					700	700
		3.0mm					775	775
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C			725	725
		0.92mm						
		1.5mm					725	725
		3.0mm					800	800
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs		>136		138
		1.5mm				>139		145
		3.0mm				>150		143
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s		11		20
		1.5mm				20		36
		3.0mm				28		>150
		6.0mm						

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					Low Warp Alloys			
	Property		Method	Units	Crastin® LW9320 BK851	Crastin® LW9320 NC010	Crastin® LW9330 BK851	Crastin® LW9330 NC010
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	130	130	130	130
		0.8mm						
		1.5mm						
	RTI, Impact	0.75mm	UL 746B	C	125	125	125	125
		0.8mm						
		1.5mm			125	125	125	125
		3.0mm			130	130	130	130
	RTI, Strength	0.75mm	UL 746B	C	130	130	130	130
		0.8mm						
		1.5mm						
		2.0mm						
		3.0mm						
Other	Density		ISO 1183	kg/m3	1340	1340	1420	1420
				g/cm3	1.34	1.34	1.42	1.42
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				
				kpsi				
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%				
		Immersion 24h	to					
		Saturation, immersed						
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%		0.65		0.6
		Parallel, 2.0mm				0.4		0.3
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	260	260	260	260
				F	500	500	500	500
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	100	100	100	100
				F	210	210	210	210
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm				
				in				
		90MPa, 5x0.30mm		mm		18		16
				in		0.7		0.6
		90MPa, 5x0.50mm		mm		54		51
				in		2.1		2
		90MPa, 5x0.75mm		mm		103		94
				in		4.1		3.7
		90MPa, 5x1.00mm		mm		155		143
				in		6.1		5.6

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced					
	Property	Method	Units	Crastin® SK601 BK851	Crastin® SK601 NC010	Crastin® SK602 BK851	Crastin® SK602 NC010	Crastin® SK603 BK851	Crastin® SK603 NC010
	Resin Identification	ISO 1043		PBT-GF10	PBT-GF10	PBT-GF15	PBT-GF15	PBT-GF20	PBT-GF20
	Part Marking Code	ISO 11469		>PBT-GF10<	>PBT-GF10<	>PBT-GF15<	>PBT-GF15<	>PBT-GF20<	>PBT-GF20<
Mechanical	Stress at Break	ISO 527	MPa	87	90	102	109	113	125
			kpsi	12.6	13.1	14.8	15.8	16.4	18.1
	Strain at Break	ISO 527	%	4	4.7	3.4	3.5	3	3.2
	Tensile Modulus	ISO 527	MPa	4500	4500	5700	5800	6900	7400
			kpsi	650	653	830	840	1000	1070
	Tensile Creep Modulus 1h	ISO 899	MPa		4000		5300		7200
			kpsi		580		769		1044
	1000h		MPa		2500		4300		5600
			kpsi		363		624		812
	Flexural Modulus	ISO 178	MPa				5200		6200
			kpsi				750		900
	Flexural Strength	ISO 178	MPa	140	140		160	175	180
			kpsi	20.3	20.3		23.2	25.4	26.1
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2				7		
	-30ºC (-22ºF)				6		7		9
	23ºC (73ºF)			5	6	6	7	8	8
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2				40		
	-30ºC (-22ºF)				40		45		55
	23ºC (73ºF)			35	35	40	45	55	60
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C		215		220		220
			F		419		428		428
	0.45MPa, Annealed		C						
			F						
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C	180	175	200	200	204	204
			F	356	350	392	392	399	399
	1.80MPa, Annealed		C						
			F						
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	225	225	225	225	225	225
			F	437	440	437	437	437	437
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C						
	-40-73°F		E-4/F						
	23-55°C		E-4/C		1.2		1.10		1.0
	73-130°F		E-4/F		0.67		0.61		0.56
	55-160°C		E-4/C						
	130-320°F		E-4/F						
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C						
	-40-73°F		E-4/F						
	23-55°C		E-4/C		0.6		0.50		0.4
	73-130°F		E-4/F		0.33		0.28		0.22
	55-160°C		E-4/C						
	130-320°F		E-4/F						
	Thermal Conductivity	DIN 51046	W/m K		0.25		0.26		0.27
			Btu in/h ft2 F		1.7		1.8		1.9
	Vicat Softening Temperature 10N	ISO 306	C		215		221		221
			F		420		429		429
	50N		C		205		205		208
			F		400		401		406
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C						
			F						
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C				210		210
			F				409		409

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced					
	Property	Method	Units	Crastin® SK601 BK851	Crastin® SK601 NC010	Crastin® SK602 BK851	Crastin® SK602 NC010	Crastin® SK603 BK851	Crastin® SK603 NC010
Electrical	Surface Resistivity	IEC 60093	ohm		>1E14		1E15		1E15
	Relative Permittivity 50Hz	IEC 60250			3.9				
	1E2 Hz				3.9		4.1		4.2
	1E3 Hz								
	1E6 Hz				3.5		3.5		3.6
	Volume Resistivity	IEC 60093	ohm m		>1E13		>1E13		>1E13
	Dissipation Factor 50Hz	IEC 60250	E-4		20				
	1E2 Hz				20		20		21
	1E3 Hz								
	1E6 Hz				200		200		190
	Electric Strength 1.0mm	IEC 60243-1	kV/mm		30		27		29
			V/mil		760		685		735
	2.0mm		kV/mm		17		17		17
			V/mil		431		430		430
	CTI	IEC 60112	V	300	300		350		400
	CTI	UL 746A	V	250	250		250		250
Flammability	Flammability Classification	IEC 60695-11-10		HB	HB	HB	HB	HB	HB
	Min. Thickness Tested		mm	1.5	1.5	1.5	1.5	0.75	0.75
	Flammability Classification	UL94		HB	HB	HB	HB	HB	HB
	Min. Thickness Tested	UL94	mm	1.5	1.5	1.5	1.5	0.75	0.75
	5V Rating	IEC 60695-11-20							
	5V Min. Thickness Tested		mm						
	5V Rating	UL94							
	5V Min. Thickness Tested	UL94	mm						
	Oxygen Index	ISO 4589-1/-2	%	20	20		19		19
	Glow Wire Flammability Index 3.0mm	IEC 60695-2-1	C				750		750
	Glow Wire Flammability Index 0.75mm	IEC 60695-2-12	C						
	0.92mm								
	1.5mm								
	3.0mm								
	0.75mm	IEC 60695-2-13	C						
	Glow Wire Ignition Temperature 0.92mm								
	1.5mm								
	3.0mm								
	High Amperage Arc Ignition 0.75mm	UL 746A	arcs						
	Resistance 1.5mm			60	60		60		80
	3.0mm			60	60		60		87
	6.0mm			60	60		60		66
	Hot Wire Ignition 0.75mm	UL 746A	s						
	1.5mm			15	15		15		36
	3.0mm			15	15		15		65
	6.0mm			60	60		60		120

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced					
	Property	Method	Units	Crastin® SK601 BK851	Crastin® SK601 NC010	Crastin® SK602 BK851	Crastin® SK602 NC010	Crastin® SK603 BK851	Crastin® SK603 NC010
Temperature Index	RTI, Electrical 0.75mm	UL 746B	C	130	130	130	130	130	130
	0.8mm								
	1.5mm								
	RTI, Impact 0.75mm	UL 746B	C	115	115	115	115	130	130
	0.8mm								
	1.5mm								
	3.0mm								
	RTI, Strength 0.75mm	UL 746B	C	120	120	120	120	130	130
	0.8mm								
	1.5mm								
	2.0mm								
	3.0mm								
Other	Density	ISO 1183	kg/m3	1370	1370	1410	1410	1450	1450
			g/cm3	1.37	1.37	1.41	1.41	1.45	1.45
	Ball Indention Hardness H 358/30	ISO 2039-1	MPa		155				
			kpsi		22				
	Ball Indention Hardness H 961/30	ISO 2039-1	MPa				175		180
			kpsi				25		26
	Hardness, Rockwell Scale R	ISO 2039/2							
	Water Absorption Equilibrium 50%RH	ISO 62, Similar	%		0.2		0.17		0.15
	Immersion 24h	to							
	Saturation, immersed				0.4		0.42		0.4
	Molding Shrinkage Normal, 2.0mm	ISO 294-4	%		1.2		1.1		1.05
	Parallel, 2.0mm				0.7		0.4		0.35
Processing	Melt Temperature Range		C	240-260	240-260	240-260	240-260	240-260	240-260
			F	465-500	465-500	465-500	465-500	465-500	465-500
	Melt Temperature Optimum		C	250	250	250	250	250	250
			F	480	480	480	480	480	480
	Mold Temperature Range		C	30-130	30-130	30-130	30-130	30-130	30-130
			F	85-265	85-265	85-265	85-265	85-265	85-265
	Mold Temperature Optimum		C	80	80	80	80	80	80
			F	175	175	175	175	175	175
	Drying Time, Dehumidified Dryer		h	2-4	2-4	2-4	2-4	2-4	2-4
	Drying Temperature		C	110-130	110-130	110-130	110-130	110-130	110-130
			F	230-265	230-265	230-265	230-265	230-265	230-265
	Processing Moisture Content		%	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
	Snake Flow 100MPa, 7 x 2mm		mm		500		500		445
			in		19.7		19.7		17.5
	90MPa, 5x0.30mm		mm		12		12		10
			in		0.5		0.5		0.4
	90MPa, 5x0.50mm		mm		40		39		36
			in		1.6		1.5		1.4
	90MPa, 5x0.75mm		mm		83		82		78
			in		3.3		3.2		3.1
	90MPa, 5x1.00mm		mm		132		132		126
			in		5.2		5.2		5

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced					Glass Bead
	Property	Method	Units	Crastin® SK605 BK851	Crastin® SK605 NC010	Crastin® SK608 BK509	Crastin® SK609 BK851	Crastin® SK609 NC010	Crastin® SO653 NC010
	Resin Identification	ISO 1043		PBT-GF30	PBT-GF30	PBT-GF45	PBT-GF50	PBT-GF50	PBT-GB20
	Part Marking Code	ISO 11469		>PBT-GF30<	>PBT-GF30<	>PBT-GF45<	>PBT-GF50<	>PBT-GF50<	>PBT-GB20<
Mechanical	Stress at Break	ISO 527	MPa	130	140	140	145	155	47
			kpsi	18.9	20.3	20.3	21.0	22.0	6.8
	Strain at Break	ISO 527	%	2.5	2.7	2	1.7	1.7	10
	Tensile Modulus	ISO 527	MPa	9600	10000	14200	15700	16200	3500
			kpsi	1390	1450	2060	2280	2400	510
	Tensile Creep Modulus 1h	ISO 899	MPa		9000			15000	3500
			kpsi		1305			2175	508
	1000h		MPa		6600			11600	2400
			kpsi		957			1682	350
	Flexural Modulus	ISO 178	MPa		9000	13300		14900	
			kpsi		1300	193		2200	
	Flexural Strength	ISO 178	MPa	200	200	210	210	230	90
			kpsi	29.0	29.0	30.5	30.5	33	13.0
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2		10				
	-30ºC (-22ºF)				11			12	3.5
	23ºC (73ºF)			10	11	10	11	11	3.5
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2		75				
	-30ºC (-22ºF)				75	65		65	50
	23ºC (73ºF)			65	70	55	50	55	40
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C		220	222		222	165
			F		428	432		432	329
	0.45MPa, Annealed		C						
			F						
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C	205	205	207	210	210	65
			F	401	401	405	410	410	149
	1.80MPa, Annealed		C						
			F						
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	225	225	225	225	225	225
			F	437	437	440	437	437	440
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C						
	-40-73°F		E-4/F						
	23-55°C		E-4/C		0.90	0.80		0.8	1.1
	73-130°F		E-4/F		0.50	0.44		0.44	0.6
	55-160°C		E-4/C						
	130-320°F		E-4/F						
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C						
	-40-73°F		E-4/F						
	23-55°C		E-4/C		0.30	0.20		0.2	1.1
	73-130°F		E-4/F		0.20	0.11		0.11	0.6
	55-160°C		E-4/C						
	130-320°F		E-4/F						
	Thermal Conductivity	DIN 51046	W/m K		0.28	0.32		0.35	0.25
			Btu in/h ft2 F		1.95	2.2		1.4	0.95
	Vicat Softening Temperature 10N	ISO 306	C		221	220		220	205
			F		429	430		430	400
	50N		C		213	215		215	195
			F		415	420		420	385
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C						
			F						
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C		210	210		210	190
			F		409	409		409	375

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced				Glass Bead
	Property	Method	Units	Crastin® SK605 BK851	Crastin® SK605 NC010	Crastin® SK608 BK509	Crastin® SK609 BK851	Crastin® SK609 NC010	Crastin® SO653 NC010
Electrical	Surface Resistivity	IEC 60093	ohm		>1E15	>1E14		>1E14	>1E14
	Relative Permittivity 50Hz	IEC 60250						4.1	4
	1E2 Hz				4.4	4.1		4.1	4
	1E3 Hz								
	1E6 Hz				3.8	3.9		3.9	3.7
	Volume Resistivity	IEC 60093	ohm m		>1E13	>1E13		>1E13	>1E13
	Dissipation Factor 50Hz	IEC 60250	E-4					38	90
	1E2 Hz				25	38		38	90
	1E3 Hz								
	1E6 Hz				180	130		130	160
	Electric Strength 1.0mm	IEC 60243-1	kV/mm		31	32		33	25
			V/mil		785	810		840	635
	2.0mm		kV/mm		17	15		14	17
			V/mil		430	380		355	430
	CTI	IEC 60112	V		450	475	500	500	
	CTI	UL 746A	V		400	475	400	400	250
Flammability	Flammability Classification	IEC 60695-11-10		HB	HB	HB	HB	HB	HB
	Min. Thickness Tested		mm	0.75	0.75	0.75	0.75	0.75	1.5
	Flammability Classification	UL94		HB	HB	HB	HB	HB	HB
	Min. Thickness Tested	UL94	mm	0.75	0.75	0.75	0.75	0.75	1.5
	5V Rating	IEC 60695-11-20							
	5V Min. Thickness Tested		mm						
	5V Rating	UL94							
	5V Min. Thickness Tested	UL94	mm						
	Oxygen Index	ISO 4589-1/-2	%	20	19	20		20	22
	Glow Wire Flammability Index 3.0mm	IEC 60695-2-1	C			750	750	750	750
	Glow Wire Flammability Index 0.75mm	IEC 60695-2-12	C	725	725				
	0.92mm								
	1.5mm			725	725				
	3.0mm			825	825				
	0.75mm	IEC 60695-2-13	C	750	750				
	Glow Wire Ignition Temperature 0.92mm								
	1.5mm			750	750				
	3.0mm			800	800				
	High Amperage Arc Ignition 0.75mm	UL 746A	arcs				101	101	
	Resistance 1.5mm				60	60	160	160	60
	3.0mm				120	60	76	76	120
	6.0mm				120		47	47	60
	Hot Wire Ignition 0.75mm	UL 746A	s				24	24	
	1.5mm				15	15	41	41	15
	3.0mm				30	30	69	69	15
	6.0mm				120		111	111	30

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced					Glass Bead
	Property	Method	Units	Crastin® SK605 BK851	Crastin® SK605 NC010	Crastin® SK608 BK509	Crastin® SK609 BK851	Crastin® SK609 NC010	Crastin® SO653 NC010
Temperature Index	RTI, Electrical 0.75mm	UL 746B	C	130	130	130	130	130	
	0.8mm								120
	1.5mm								
	RTI, Impact 0.75mm	UL 746B	C	130	130	125	125	125	
	0.8mm								115
	1.5mm								
	3.0mm								
	RTI, Strength 0.75mm	UL 746B	C	130	130	130	130	130	
	0.8mm								120
	1.5mm								
	2.0mm								
	3.0mm								
Other	Density	ISO 1183	kg/m3	1520	1530	1660	1710	1720	1450
			g/cm3	1.52	1.53	1.66	1.71	1.72	1.45
	Ball Indention Hardness H 358/30	ISO 2039-1	MPa						144
			kpsi						21
	Ball Indention Hardness H 961/30	ISO 2039-1	MPa		200	222		230	
			kpsi		29	32		33	
	Hardness, Rockwell Scale R	ISO 2039/2							
	Water Absorption Equilibrium 50%RH	ISO 62,	%		0.13	0.1		0.1	0.2
	Immersion 24h	Similar to							
	Saturation, immersed				0.37	0.3		0.2	0.35
	Molding Shrinkage Normal, 2.0mm	ISO 294-4	%		1.1	1.3		1.1	1.6
	Parallel, 2.0mm				0.3	0.3		0.3	1.8
Processing	Melt Temperature Range		C	240-260	240-260	250-270	260-270	260-270	240-260
			F	465-500	465-500	480-520	500-520	500-520	465-500
	Melt Temperature Optimum		C	250	250	260	260	260	250
			F	480	480	500	500	500	480
	Mold Temperature Range		C	30-130	30-130	30-130	30-130	30-130	30-130
			F	85-265	85-265	85-265	85-265	85-265	85-265
	Mold Temperature Optimum		C	80	80	80	80	80	80
			F	175	175	175	175	175	175
	Drying Time, Dehumidified Dryer		h	2-4	2-4	2-4	2-4	2-4	2-4
	Drying Temperature		C	110-130	110-130	110-130	110-130	110-130	110-130
			F	230-265	230-265	230-265	230-265	230-265	230-265
	Processing Moisture Content		%	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
	Snake Flow 100MPa, 7 x 2mm		mm		375	270		235	350
			in		14.8	10.6		9.3	13.8
	90MPa, 5x0.30mm		mm		9	14		12	6
			in		0.4	0.6		0.5	0.2
	90MPa, 5x0.50mm		mm		37	26		24	20
			in		1.5	1		0.9	0.8
	90MPa, 5x0.75mm		mm		75	53		47	49
			in		3	2.1		1.9	1.9
	90MPa, 5x1.00mm		mm		119	85		76	81
			in		4.7	3.3		3	3.2

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced, Improved Impact			
	Property	Method	Units	Crastin® T803 BK851	Crastin® T803 NC010	Crastin® T805 BK851	Crastin® T805 NC010
	Resin Identification	ISO 1043		PBTC-GF20	PBTC-GF20	PBTC-GF30	PBTC-GF30
	Part Marking Code	ISO 11469		>PBTC-GF20<	>PBTC-GF20<	>PBTC-GF30<	>PBTC-GF30<
Mechanical	Stress at Break	ISO 527	MPa	85	92	106	112
			kpsi	12.3	13.0	15.4	16.2
	Strain at Break	ISO 527	%	5	5	4	4
	Tensile Modulus	ISO 527	MPa	4900	4900	7000	7300
			kpsi	710	710	1020	1100
	Tensile Creep Modulus 1h	ISO 899	MPa				6200
			kpsi				900
	1000h		MPa				4000
			kpsi				580
	Flexural Modulus	ISO 178	MPa				
			kpsi				
	Flexural Strength	ISO 178	MPa	140	145	165	175
			kpsi	20.3	21	23.9	25.0
	Notched Charpy Impact -40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
	-30ºC (-22ºF)						13
	23ºC (73ºF)			10	10	13	14
	Unnotched Charpy Impact -40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
	-30ºC (-22ºF)						90
	23ºC (73ºF)			60	70	70	75
Thermal	Deflection Temperature 0.45MPa	ISO 75-1/-2	C				205
			F				401
	0.45MPa, Annealed		C				
			F				
	Deflection Temperature 1.80MPa	ISO 75-1/-2	C		180	185	185
			F		355	365	365
	1.80MPa, Annealed		C				
			F				
	Melting Temperature 10°C/min	ISO 11357-1/-3	C	205	205	205	205
			F	400	400	400	400
	CLTE, Normal -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		1.6		1.2
	73-130°F		E-4/F		0.9		0.65
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	CLTE, Parallel -40-23°C	ISO 11359-1/-2	E-4/C				
	-40-73°F		E-4/F				
	23-55°C		E-4/C		0.35		0.3
	73-130°F		E-4/F		0.2		0.15
	55-160°C		E-4/C				
	130-320°F		E-4/F				
	Thermal Conductivity	DIN 51046	W/m K				0.3
			Btu in/h ft2 F				1.2
	Vicat Softening Temperature 10N	ISO 306	C				205
			F				400
	50N		C				190
			F				375
	Hot Ball Pressure Test Plate 3mm	IEC 60309	C				
			F				
	Hot Ball Pressure Test Plate 3mm	VDE 0470	C				200
			F				391

Test temperatures are 23°C (73°F) unless otherwise stated.

					Glass Reinforced, Improved Impact			
	Property		**Method**	**Units**	**Crastin® T803 BK851**	**Crastin® T803 NC010**	**Crastin® T805 BK851**	**Crastin® T805 NC010**
Electrical	Surface Resistivity		IEC 60093	ohm		>1E14		>1E14
	Relative Permittivity	50Hz	IEC 60250			3.8		4.4
		1E2 Hz						4.4
		1E3 Hz						
		1E6 Hz				3.6		4
	Volume Resistivity		IEC 60093	ohm m		>1E13		>1E13
	Dissipation Factor	50Hz	IEC 60250	E-4		100		95
		1E2 Hz						95
		1E3 Hz						
		1E6 Hz				200		215
	Electric Strength	1.0mm	IEC 60243-1	kV/mm		26		29
				V/mil		660		735
		2.0mm		kV/mm				17
				V/mil				430
	CTI		IEC 60112	V				
	CTI		UL 746A	V			440	440
Flammability	Flammability Classification		IEC 60695-11-10		HB		HB	HB
	Min. Thickness Tested			mm	0.75		0.75	0.75
	Flammability Classification		UL94		HB		HB	HB
	Min. Thickness Tested		UL94	mm	0.75		0.75	0.75
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%		19		19
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C				750
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm				750		
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C				
		0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition Resistance	0.75mm	UL 746A	arcs				
		1.5mm						
		3.0mm						
		6.0mm						
	Hot Wire Ignition	0.75mm	UL 746A	s				
		1.5mm						
		3.0mm						
		6.0mm						

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					Glass Reinforced, Improved Impact			
	Property		Method	Units	Crastin® T803 BK851	Crastin® T803 NC010	Crastin® T805 BK851	Crastin® T805 NC010
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	75		130	130
		0.8mm						
		1.5mm					140	140
	RTI, Impact	0.75mm	UL 746B	C	75		130	130
		0.8mm						
		1.5mm						
		3.0mm						
	RTI, Strength	0.75mm	UL 746B	C	75		130	130
		0.8mm						
		1.5mm					140	140
		2.0mm						
		3.0mm						
Other	Density		ISO 1183	kg/m3	1430	1430	1510	1510
				g/cm3	1.43	1.43	1.51	1.51
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				150
				kpsi				22
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%		0.15		0.15
		Immersion 24h	to					
		Saturation, immersed				0.4		0.35
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%		0.9		0.9
		Parallel, 2.0mm				0.4		0.3
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	250	250
				F	480	480	480	480
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm				425
				in				16.7
		90MPa, 5x0.30mm		mm		17		12
				in		0.7		0.5
		90MPa, 5x0.50mm		mm		49		42
				in		1.9		1.7
		90MPa, 5x0.75mm		mm		97		80
				in		3.8		3.1
		90MPa, 5x1.00mm		mm		154		124
				in		6.1		4.9

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					Reinforced FR	Glass Reinforced, Improved Impact, FR		
	Property		Method	Units	Crastin® HTI668FR NC010	Crastin® T835FRUV NC010	Crastin® T841FR BK851	Crastin® T841FR NC010
	Resin Identification		ISO 1043		PBTC-(MD+GF)45FR(17)	PBT-IGF5FR(17)	PBTC-GF10FR(17)	PBTC-GF10FR(17)
	Part Marking Code		ISO 11469		>PBTC-(MD+GF)45FR(17)	>PBT-IGF5FR(17)<	>PBTC-GF10FR(17)<	>PBTC-GF10FR(17)<
Mechanical	Stress at Break		ISO 527	MPa	77	62	68	68
				kpsi	11	9.0	9.9	9.9
	Strain at Break		ISO 527	%	2.1	5	4.5	4.7
	Tensile Modulus		ISO 527	MPa	6800	3400	4000	4000
				kpsi	985	490	580	580
	Tensile Creep Modulus	1h	ISO 899	MPa	5500			3000
				kpsi	797			435
		1000h		MPa	4100			2000
				kpsi	594			290
	Flexural Modulus		ISO 178	MPa	5700	3100		
				kpsi	826	450		
	Flexural Strength		ISO 178	MPa	115		110	110
				kpsi	17		16.0	16.0
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
		-30ºC (-22ºF)			4			5
		23ºC (73ºF)			5	9	7.5	8.5
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
		-30ºC (-22ºF)			22			40
		23ºC (73ºF)			28	55	45	46
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C	200			200
				F	392			392
		0.45MPa, Annealed		C				
				F				
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	185	120	170	170
				F	365	248	340	340
		1.80MPa, Annealed		C				
				F				
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	205	223	205	205
				F	400	433	401	401
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C	1.0			1.4
		73-130°F		E-4/F	0.55			0.78
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C	0.4			0.7
		73-130°F		E-4/F	0.2			0.39
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	Thermal Conductivity		DIN 51046	W/m K	0.5			0.25
				Btu in/h ft2 F	2			0.95
	Vicat Softening Temperature	10N	ISO 306	C	200			200
				F	390			390
		50N		C	170			180
				F	340			355
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				
				F				
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C	200			180
				F	391			355

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Reinforced FR	Glass Reinforced, Improved Impact, FR		
	Property		Method	Units	Crastin® HTI668FR NC010	Crastin® T835FRUV NC010	Crastin® T841FR BK851	Crastin® T841FR NC010
Electrical	Surface Resistivity		IEC 60093	ohm	>1E14			>1E14
	Relative Permittivity	50Hz	IEC 60250		4.2			4
		1E2 Hz			5.3			4
		1E3 Hz						
		1E6 Hz			4.1			3.8
	Volume Resistivity		IEC 60093	ohm m	>1E13			>1E13
	Dissipation Factor	50Hz	IEC 60250	E-4	130			100
		1E2 Hz			236			100
		1E3 Hz						
		1E6 Hz			305			180
	Electric Strength	1.0mm	IEC 60243-1	kV/mm	25			27
				V/mil	635			685
		2.0mm		kV/mm	18			16
				V/mil	457			405
	CTI		IEC 60112	V	600		225	250
	CTI		UL 746A	V	600		275	275
Flammability	Flammability Classification		IEC 60695-11-10		V-0	V-0	V-0	V-0
	Min. Thickness Tested			mm	1.0	0.8	1.5	1.5
	Flammability Classification		UL94		V-0	V-0	V-0	V-0
	Min. Thickness Tested		UL94	mm	1.0	0.8	1.5	1.5
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%	29		31	30
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C	960		960	960
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm						
	Glow Wire Ignition Temperature	0.75mm	IEC 60695-2-13	C				
		0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition	0.75mm	UL 746A	arcs				
	Resistance	1.5mm			177		120	120
		3.0mm			190		127	127
		6.0mm			44		120	120
	Hot Wire Ignition	0.75mm	UL 746A	s				
		1.5mm			85		38	38
		3.0mm			120		79	79
		6.0mm			116		119	119

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					Reinforced FR	Glass Reinforced, Improved Impact, FR		
					Crastin® HTI668FR	Crastin® T835FRUV	Crastin® T841FR	Crastin® T841FR
	Property		**Method**	**Units**	**NC010**	**NC010**	**BK851**	**NC010**
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C	125			
		0.8mm				130		
		1.5mm					130	130
	RTI, Impact	0.75mm	UL 746B	C	125			
		0.8mm				130		
		1.5mm					120	120
		3.0mm					130	130
	RTI, Strength	0.75mm	UL 746B	C	125			
		0.8mm				130		
		1.5mm					130	130
		2.0mm						
		3.0mm						
Other	Density		ISO 1183	kg/m3	1790	1430	1530	1540
				g/cm3	1.79	1.43	1.53	1.54
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa				120
				kpsi				17.4
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa	189			
				kpsi	27			
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%	0.2			0.15
		Immersion 24h	to					
		Saturation, immersed			0.5			0.35
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%	0.9		1.1	1.2
		Parallel, 2.0mm			0.5		0.9	0.8
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	250	250	240	240
				F	480	480	465	465
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm	400			440
				in	15.7			17.3
		90MPa, 5x0.30mm		mm	10			13
				in	0.4			0.5
		90MPa, 5x0.50mm		mm	35			44
				in	1.4			1.7
		90MPa, 5x0.75mm		mm	73			87
				in	2.9			3.4
		90MPa, 5x1.00mm		mm	122			137
				in	4.8			5.4

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced, Improved Impact, FR			
	Property		**Method**	**Units**	**Crastin® T843FR BK851**	**Crastin® T843FR NC010**	**Crastin® T845FR BK851**	**Crastin® T845FR NC010**
	Resin Identification		ISO 1043		PBTC-GF20FR(17)	PBTC-GF20FR(17)	PBTC-GF30FR(17)	PBTC-GF30FR(17)
	Part Marking Code		ISO 11469		>PBTC-GF20FR(17)<	>PBTC-GF20FR(17)<	>PBTC-GF30FR(17)<	>PBTC-GF30FR(17)<
Mechanical	Stress at Break		ISO 527	MPa	87	90	104	105
				kpsi	12.6	13	15.1	15.2
	Strain at Break		ISO 527	%	4	4.2	3.5	3.5
	Tensile Modulus		ISO 527	MPa	5800	5800	8300	8200
				kpsi	840	840	1200	1190
	Tensile Creep Modulus	1h	ISO 899	MPa		5400		7800
				kpsi		783		1131
		1000h		MPa		3500		5200
				kpsi		508		754
	Flexural Modulus		ISO 178	MPa				
				kpsi				
	Flexural Strength		ISO 178	MPa	142	145	170	170
				kpsi	20.6	21	24.7	24.7
	Notched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eA	kJ/m2				
		-30ºC (-22ºF)				8		10
		23ºC (73ºF)			9	11	11	11
	Unnotched Charpy Impact	-40ºC (-40ºF)	ISO 179/1eU	kJ/m2				
		-30ºC (-22ºF)				60		65
		23ºC (73ºF)			55	55	60	60
Thermal	Deflection Temperature	0.45MPa	ISO 75-1/-2	C		204		205
				F		399		401
		0.45MPa, Annealed		C				
				F				
	Deflection Temperature	1.80MPa	ISO 75-1/-2	C	180	180	185	185
				F	355	355	365	365
		1.80MPa, Annealed		C				
				F				
	Melting Temperature	10°C/min	ISO 11357-1/-3	C	205	205	205	205
				F	401	401	401	401
	CLTE, Normal	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C		1.3		1.2
		73-130°F		E-4/F		0.7		0.65
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	CLTE, Parallel	-40-23°C	ISO 11359-1/-2	E-4/C				
		-40-73°F		E-4/F				
		23-55°C		E-4/C		0.4		0.3
		73-130°F		E-4/F		0.2		0.15
		55-160°C		E-4/C				
		130-320°F		E-4/F				
	Thermal Conductivity		DIN 51046	W/m K		0.3		0.3
				Btu in/h ft2 F		1.2		1.2
	Vicat Softening Temperature	10N	ISO 306	C		200		205
				F		390		401
		50N		C		185		190
				F		365		375
	Hot Ball Pressure Test	Plate 3mm	IEC 60309	C				
				F				
	Hot Ball Pressure Test	Plate 3mm	VDE 0470	C		180		180
				F		355		355

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced, Improved Impact, FR			
	Property		**Method**	**Units**	**Crastin® T843FR BK851**	**Crastin® T843FR NC010**	**Crastin® T845FR BK851**	**Crastin® T845FR NC010**
Electrical	Surface Resistivity		IEC 60093	ohm		>1E14		>1E14
	Relative Permittivity	50Hz	IEC 60250			4.1		4.2
		1E2 Hz				4.1		4.2
		1E3 Hz						
		1E6 Hz				3.9		4
	Volume Resistivity		IEC 60093	ohm m		>1E13		>1E13
	Dissipation Factor	50Hz	IEC 60250	E-4		110		130
		1E2 Hz				110		130
		1E3 Hz						
		1E6 Hz				170		170
	Electric Strength	1.0mm	IEC 60243-1	kV/mm		27		27
				V/mil		685		685
		2.0mm		kV/mm		16		16
				V/mil		406		405
	CTI		IEC 60112	V	225	275	325	325
	CTI		UL 746A	V	275	275	250	250
Flammability	Flammability Classification		IEC 60695-11-10		V-0	V-0	V-0	V-0
	Min. Thickness Tested			mm	1.5	1.5	1.5	1.5
	Flammability Classification		UL94		V-0	V-0	V-0	V-0
	Min. Thickness Tested		UL94	mm	1.5	1.5	1.5	1.5
	5V Rating		IEC 60695-11-20					
	5V Min. Thickness Tested			mm				
	5V Rating		UL94					
	5V Min. Thickness Tested		UL94	mm				
	Oxygen Index		ISO 4589-1/-2	%	31	30	33	30
	Glow Wire Flammability Index	3.0mm	IEC 60695-2-1	C	960	960	960	960
	Glow Wire Flammability Index	0.75mm	IEC 60695-2-12	C				
		0.92mm						
		1.5mm						
		3.0mm						
		0.75mm	IEC 60695-2-13	C				
	Glow Wire Ignition Temperature	0.92mm						
		1.5mm						
		3.0mm						
	High Amperage Arc Ignition	0.75mm	UL 746A	arcs				
	Resistance	1.5mm			120	120	37	37
		3.0mm			120	120	60	60
		6.0mm			120	120	44	44
	Hot Wire Ignition	0.75mm	UL 746A	s				
		1.5mm			30	30	42	42
		3.0mm			60	60	80	80
		6.0mm			60	60	120	120

Test temperatures are 23°C (73°F) unless otherwise stated.

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					Glass Reinforced, Improved Impact, FR			
	Property		**Method**	**Units**	**Crastin® T843FR BK851**	**Crastin® T843FR NC010**	**Crastin® T845FR BK851**	**Crastin® T845FR NC010**
Temperature Index	RTI, Electrical	0.75mm	UL 746B	C				
		0.8mm						
		1.5mm			130	130	140	140
	RTI, Impact	0.75mm	UL 746B	C				
		0.8mm						
		1.5mm			120	120	130	130
		3.0mm			130	130	140	140
	RTI, Strength	0.75mm	UL 746B	C				
		0.8mm						
		1.5mm			130	130	140	140
		2.0mm						
		3.0mm						
Other	Density		ISO 1183	kg/m3	1590	1600	1670	1670
				g/cm3	1.59	1.60	1.67	1.67
	Ball Indention Hardness	H 358/30	ISO 2039-1	MPa		140		153
				kpsi		20		22
	Ball Indention Hardness	H 961/30	ISO 2039-1	MPa				
				kpsi				
	Hardness, Rockwell	Scale R	ISO 2039/2					
	Water Absorption	Equilibrium 50%RH	ISO 62, Similar	%		0.15		0.1
		Immersion 24h	to					
		Saturation, immersed				0.3		0.25
	Molding Shrinkage	Normal, 2.0mm	ISO 294-4	%	1.1	1.0	1.0	1.0
		Parallel, 2.0mm			0.5	0.4	0.4	0.3
Processing	Melt Temperature Range			C	240-260	240-260	240-260	240-260
				F	465-500	465-500	465-500	465-500
	Melt Temperature Optimum			C	240	240	240	240
				F	465	465	465	465
	Mold Temperature Range			C	30-130	30-130	30-130	30-130
				F	85-265	85-265	85-265	85-265
	Mold Temperature Optimum			C	80	80	80	80
				F	175	175	175	175
	Drying Time, Dehumidified Dryer			h	2-4	2-4	2-4	2-4
	Drying Temperature			C	110-130	110-130	110-130	110-130
				F	230-265	230-265	230-265	230-265
	Processing Moisture Content			%	<0.04	<0.04	<0.04	<0.04
	Snake Flow	100MPa, 7 x 2mm		mm		400		330
				in		15.7		13
		90MPa, 5x0.30mm		mm		11		11
				in		0.4		0.4
		90MPa, 5x0.50mm		mm		37		37
				in		1.5		1.5
		90MPa, 5x0.75mm		mm		68		69
				in		2.7		2.7
		90MPa, 5x1.00mm		mm		107		111
				in		4.2		4.4

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For detailed molding information, refer to "Crastin® molding guide" available at www.plastics.dupont.com

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