PRODUCT DATA SHEET

Celstran® *long fiber reinforced thermoplastic*

Ticona
Performance Driven Solutions™

Conductive Plastics

Thermoplastics can become conductive through the incorporation of conductive fillers. At low filler concentrations, the high electrical resistance of the thermoplastic matriz predominates and conductivity is low. Above a certain filler concentration, a continuous electrically conductive path is formed, i.e., percolation network. Above this concentration, percolation threshold, conductivity increases significantly. The percolation threshold depends critically on the geometry of the filler, with fibers that have high L/D ratio, percolation threshold can be achieved below a 5 (wt)% concentration.

Celstran LFRTs are filled with stainless steel and/or carbon fiber to achieve conductivity. Practical trials have shown that a content of 6 (wt)% stainless steel fibers achieves antistatic performance and a content of 10 (wt)% provides effective EMI/RFI protection.

Celstran® LFRT – Stainless Steel Filled

Resin System			**ABS**				**Nylon 6/6**
Stainless Steel Level		wt%	6	6	10	10	6
Grade Designation			ABS-SF-6-01	ABS-SF-6-02	ABS-SF-10-01	ABS-SF-10-02	PA66-SF6-01
Property	**ASTM Method**	**Unit**					
Physical							
Specific Gravity	D792	gr/cm³	1.11	1.28	1.16	1.32	1.19
Mold Shrinkage	D955	in/in					
Flow			0.004	0.004	0.004	0.004	0.004
Transverse			0.005	0.005	0.005	0.005	0.005
Mechanical							
Tensile Modulus	D638	psi	400,000	300,000	400,000	400,000	500,000
Tensile Strength @ Break	D638	psi	6,900	5,200	7,100	5,700	11,300
Elongation @ Break	D638	%	2.5	2.6	2.4	2.5	2.9
Flexural Modulus	D790	psi	400,000	300,000	500,000	400,000	500,000
Flexural Strength	D790	psi	12,100	9,700	11,800	10,200	18,100
Izod Impact Strength	D256	ft-lb/in					
Notched			1.1	1.4	1.4	1.5	0.7
Thermal							
Heat Deflection Temperature 264 psi	D648	°F	185	190	187	195	170
Electrical							
Volume Resistivity	D257	ohm-cm	<0.8	<0.8	<0.5	<0.5	<0.8
Flammability	UL94			V-0		V-0	

Celstran® LFRT – Stainless Steel Filled

Resin System			**Nylon 66**			**Polycarbonate**		
Stainless Steel Level		wt%	6	10	10	6	6	10
Grade Designation			PA66-SF6-02	PA66-SF-10-01	PA66-SF-10-02	PC-SF6-01	PC-SF6-02	PC-SF-10-01
Property	**ASTM Method**	**Unit**	Heat Stabilized					
Physical								
Specific Gravity	D792	gr/cm^3	1.19	1.24	1.24	1.26	1.26	1.31
Mold Shrinkage	D955	in/in						
Flow			0.004	0.003	0.003	0.004	0.004	0.004
Transverse			0.005	0.004	0.004	0.005	0.005	0.005
Mechanical								
Tensile Modulus	D638	psi	500,000	600,000	600,000	400,000	400,000	400,000
Tensile Strength @ Break	D638	psi	11,300	11,500	11,500	9,400	9,400	9,800
Elongation @ Break	D638	%	2.9	2.6	2.6	4.7	5.1	4.0
Flexural Modulus	D790	psi	500,000	500,000	500,000	400,000	400,000	400,000
Flexural Strength	D790	psi	18,100	18,100	18,100	14,200	13,500	14,000
Izod Impact Strength	D256	ft-lb/in						
Notched			0.7	0.7	0.7	0.8	1.3	1.7
Thermal								
Heat Deflection Temperature 264 psi	D648	°F	170	175	175	270	260	270
Electrical								
Volume Resistivity	D257	ohm-cm	<0.8	<0.5	<0.5	<0.8	<0.8	<0.5
Flammability	UL94						V-0	

Celstran® LFRT – Stainless Steel Filled

Resin System			**Polycarbonate**	**ABS/Polycarbonate**			
Stainless Steel Level		wt%	10	6	6	10	10
Grade Designation			PC-SF-10-02	PCABS-SF-6-02	PCABS-SF-6-05	PCABS-SF-10-02	PCABS-SF-10-05
Property	**ASTM Method**	**Unit**					
Physical							
Specific Gravity	D792	gr/cm³	1.31	1.20	1.20	1.3	1.24
Mold Shrinkage	D955	in/in					
Flow			0.004	—	—	—	—
Transverse			0.005	—	—	—	—
Mechanical							
Tensile Modulus	D638	psi	400,000	400,000	400,000	400,000	400,000
Tensile Strength @ Break	D638	psi	9,900	8,100	8,100	8,700	8,700
Elongation @ Break	D638	%	4.0	3.8	3.8	3.4	3.4
Flexural Modulus	D790	psi	400,000	400,000	400,000	500,000	500,000
Flexural Strength	D790	psi	16,200	13,300	13,300	14,500	14,500
Izod Impact Strength	D256	ft-lb/in					
Notched			1.5	1.4	1.4	1.2	1.0
Thermal							
Heat Deflection Temperature 264 psi	D648	°F	260	195	230	195	230
Electrical							
Volume Resistivity	D257	ohm-cm	<0.5	<0.8	<0.8	<0.7	<0.5
Flammability	UL94		V-0	V-0	—	V-0	—

Celstran® LFRT – Stainless Steel Filled

Resin System			**Acetal Copolymer**		**Polypropylene**	**Thermoplastic**	**Polyurethane**
Stainless Steel Level		wt%	6	10	6	6	10
Grade Designation			POM-SF-6-02	POM-SF-10-02	PP-SF-6-02	TPU-SF-6-01	TPU-SF-10-01
Property	**ASTM Method**	**Unit**					
Physical							
Specific Gravity	D792	gr/cm³	1.48	1.54	0.95	1.26	1.31
Mold Shrinkage	D955	in/in					
Flow			—	—	0.005	—	—
Transverse			—	—	0.006	—	—
Mechanical							
Tensile Modulus	D638	psi	300,000	500,000	200,000	300,000	300,000
Tensile Strength @ Break	D638	psi	7,000	9,600	4,000	6,900	8,300
Elongation @ Break	D638	%	5.3	3.0	8.9	4.9	4.7
Flexural Modulus	D790	psi	200,000	400,000	200,000	300,000	300,000
Flexural Strength	D790	psi	9,300	13,700	6,200	10,400	11,100
Izod Impact Strength	D256	ft-lb/in					
Notched			1.3	0.9	0.2	2.3	1.3
Thermal							
Heat Deflection Temperature 264 psi	D648	°F	230	230	125	145	155
Electrical							
Volume Resistivity	D257	ohm-cm	<0.8	<0.5	<0.8	<0.8	<0.5
Flammability	UL94		—	—	—	—	—

Ticona
Performance Driven Solutions™

World-Class Engineering Polymers

- Celanex® thermoplastic polyester (PBT)
- Celcon® and Hostaform® acetal copolymer (POM)
- Celstran® and Compel® long fiber reinforced thermoplastics (LFRT)
- Fortron® polyphenylene sulfide (PPS)
- GUR® ultra-high molecular weight polyethylene (UHMW-PE)
- Impet® thermoplastic polyester (PET)
- Riteflex® thermoplastic polyester elastomer (TPC-ET)
- Vandar® thermoplastic polyester alloy (PBT)
- Vectra® liquid crystal polymer (LCP)

Please consult the nearest Ticona Sales Office, or call the numbers listed above for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products. Ticona engineering polymers are not intended for use in medical or dental implants.

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**0.06 €/call + local landline rates

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