Leona properties (ASTM)

Items		Test method (ASTM)	Units	Grade	Non-Reinforced					
					1300S 1302S 1402S	1402SH	1300F 1402F	1500 1502(S)	1700S 1702	9400S
Specific gravity		D792	—	DRY	1.14	1.14	1.14	1.14	1.14	1.14
Water absorption		—	%	WET	2.5	2.5	2.2	2.5	2.5	2.8
Mechanical	Tensile strength	D638	MPa	DRY	79	79	88	79	80	79
				WET	57	55	67	57	59	44
	Elongation (at break)	D638	%	DRY	50	50	35	80	100	60
				WET	250	270	200	270	300	260
	Flexural strength	D790	MPa	DRY	118	118	128	118	118	108
				WET	54	50	59	54	54	44
	Flexural modulus	D790	GPa	DRY	2.8	2.8	3.0	2.8	2.8	2.6
				WET	1.2	1.0	1.3	1.2	1.2	0.8
	Izod impact strength (notched)	D256	J/m	DRY	39	39	39	49	49	54
				WET	147	196	108	176	245	274
	Rockwell hardness	D785	scaleM /scaleR	DRY	80/120	80/120	85/120	80/120	80/120	75/—
				WET	55/108	55/108	60/110	55/105	55/105	—
	Taber abrasion	D1044	$\times 10^{-6}$kg /1000times	WET	7	7	6	5	4	—
Thermal	Coefficient of linear expansion (para to flow)	D696	$\times 10^{-5}$/K	DRY	8	8	8	8	8	—
	Temperature of deflection under load	D648	1.82MPa ℃	DRY	70	70	75	70	70	—
			0.46MPa	DRY	230	230	240	230	230	190
	Thermal conductivity		W/(m・K)	DRY	0.2	0.2	0.2	0.2	0.2	—
	Specific heat		J/(kg・K)	DRY	1670	1670	1670	1670	1670	—
Flammability	UL	(UL94)	—	DRY	V-2	V-2	V-2	—	—	—
	Oxygen index	D2863	%	DRY	26	26	26	—	23	—
Mold shrinkage, 3mm t,para/perp to flow		(Asahi Kasei)	%	DRY	1.3 - 2.0	1.3 - 2.0	0.9 - 1.6	1.3 - 2.0	1.3 - 2.0	—
Features					General purpose	Fast cycle hinge prop.	Ultrafast cycle	High mol, wt, extrusion	Superhigh mol,wt, extrusion	High mol, wt, thick-wall
Typical uses					Connectors, Cable ties, Canisters, Washers	Connectors, Clips	Electrical parts, Car parts	Fasteners, Sheets	Films, Rods, Sheets	Railway parts, Office furnishing

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1. Water absorption:Values of equilibrium moisture content at 23℃,50% relative humidity.
2. Dry: Values for specimens in the as-molded condition. Wet: Values for specimens with equilibrium moisture content at 23℃,50% relative humidity.
3. For conversion from SI units :1MPa=10.1972kgf/cm^2
   :1J/m=0.101972kgf・cm/cm

Leona properties (ASTM)

Items		Test method (ASTM)	Units	Grade	GF-Reinforced					
					13G15 14G15	1300G 1402G	13G43	13G25 14G25	14G33	14G50 (Black)
Specific gravity		D792	—	DRY	1.25	1.39	1.50	1.32	1.39	1.58
Water absorption		—	%	WET	2.1	1.7	1.4	1.9	1.7	1.3
Mechanical	Tensile strength	D638	MPa	DRY	108	186	196	180	210	235
				WET	79	132	157	110	135	170
	Elongation (at break)	D638	%	DRY	2.5	3	3	3	3	2.5
				WET	8	5	4	6	5	4
	Flexural strength	D790	MPa	DRY	167	289	314	290	325	390
				WET	108	216	235	175	210	280
	Flexural modulus	D790	GPa	DRY	4.9	9.3	11.8	8.1	10.4	14.5
				WET	2.5	6.3	8.3	4.7	6.3	9.8
	Izod impact strength (notched)	D256	J/m	DRY	49	127	127	105	130	140
				WET	59	147	206	160	170	190
	Rockwell hardness	D785	scaleM /scaleR	DRY	94/120	96/120	96/118	96/120	96/120	95/118
				WET	71/—	75/112	80/—	74/—	75/—	80/—
	Taber abrasion	D1044	$\times 10^{-6}$kg /1000times	WET	9	15	19	12	15	22
Thermal	Coefficient of linear expansion (para to flow)	D696	$\times 10^{-5}$/K	DRY	4	3	3	3	2	2
	Temperature of deflection under load	D648	1.82MPa ℃	DRY	240	250	250	250	250	250
			0.46MPa	DRY	258	260	260	260	260	260
	Thermal conductivity		W/(m・K)	DRY	—	0.3	0.4	0.3	0.3	0.4
	Specific heat		J/(kg・K)	DRY	—	1590	—	—	—	—
Flamm-ability	UL	(UL94)	—	DRY	HB	HB	HB	HB	HB	HB
	Oxygen index	D2863	%	DRY	—	23	—	—	—	—
Mold shrinkage, 3mm t,para/perp to flow		(Asahi Kasei)	%	DRY	0.7/1.2	0.4/0.9	0.3/0.7	0.5/0.9	0.4/0.8	0.4/0.7
Features					15%GF	33%GF	43%GF	25%GF	33%GF	50%GF
Typical uses					Mechanical and Electrical parts,Car pats(Micromotors,Radiator tanks,Shift lever parts) Under-the-hood car parts(Heater tanks,Fuel injectors,ABS sensors)					

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   :1J/m=0.101972kgf cm/cm

Leona properties (ASTM)

Items		Test method (ASTM)	Units	Grade	GF-Reinforced						
					54G33	54G43	93G33	90G33	90G50	90G55 (Black)	90G60 (Black)
Specific gravity		D792	—	DRY	1.39	1.50	1.39	1.39	1.58	1.64	1.71
Water absorption		—	%	WET	1.9	1.6	1.9	1.4	1.1	1.0	0.9
Mechanical	Tensile strength	D638	MPa	DRY	181	186	167	194	235	221	190
				WET	118	132	108	157	196	181	148
	Elongation (at break)	D638	%	DRY	3	3	4	3	2.5	2	2
				WET	7	4	9	4	3	3	3
	Flexural strength	D790	MPa	DRY	289	304	275	294	373	348	300
				WET	167	177	157	245	304	284	234
	Flexural modulus	D790	GPa	DRY	9.1	11.0	8.6	9.6	15.5	15.7	16.0
				WET	5.0	5.9	4.5	7.6	12.1	12.7	12.9
	Izod impact strength (notched)	D256	J/m	DRY	137	147	132	98	127	110	95
				WET	196	226	240	118	133	118	100
	Rockwell hardness	D785	scaleM /scaleR	DRY	93/120	93/118	90/—	90/120	90/120	95/120	95/120
				WET	68/110	—	—	—	—	88/115	88/117
	Taber abrasion	D1044	$\times 10^{-6}$kg /1000times	WET	—	—	—	—	—	—	—
Thermal	Coefficient of linear expansion (para to flow)	D696	$\times 10^{-5}$/K	DRY	3	—	3	3	2	2	2
	Temperature of deflection under load	D648	1.82MPa ℃	DRY	240	240	210	220	225	225	225
			0.46MPa	DRY	250	250	—	—	—	—	—
	Thermal conductivity		W/(m・K)	DRY	—	—	—	—	—	0.3	0.3
	Specific heat		J/(kg・K)	DRY	—	—	—	—	—	1930	1840
Flamm-ability	UL	(UL94)	—	DRY	HB	HB	HB	—	HB	—	—
	Oxygen index	D2863	%	DRY	—	—	—	—	—	—	—
Mold shrinkage, 3mm t,para/perp to flow		(Asahi Kasei)	%	DRY	0.4/0.9	0.3/0.7	0.3/0.8	0.4/0.9	0.2/0.5	0.2/0.5	0.2/0.5
Features					High toughness, Good appearance		Good appearance	Good appearance	High stiffness Good appearance	High stiffness Good appearance Weatherability	High stiffness Smooth surface Good weatherability
Typical uses					Fans, Railway parts		Office furnishings	Car pats	Office furnishings, Mechanical parts	Automotive exterior parts	

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Leona properties (ASTM)

Items		Test method (ASTM)	Units	Grade	Special Grades						
					91G40	CR101	CR301	CR302	MR001	1330G	TR160
Specific gravity		D792	—	DRY	1.46	1.45	1.48	1.52	1.52	1.48	1.11
Water absorption		—	%	WET	1.3	1.5	1.5	1.4	1.5	1.4	1.9
Mechanical	Tensile strength	D638	MPa	DRY	127	125	88	128	98	157	70
				WET	98	83	64	98	67	118	47
	Elongation (at break)	D638	%	DRY	3	3	3	3	6	3	20
				WET	3.5	4	3.5	3.5	7	3	220
	Flexural strength	D790	MPa	DRY	206	190	147	191	157	245	98
				WET	166	118	93	157	98	177	49
	Flexural modulus	D790	GPa	DRY	6.5	6.1	5.9	8.8	5.6	8.0	2.5
				WET	5.6	3.1	2.9	5.8	3.3	6.3	1.4
	Izod impact strength (notched)	D256	J/m	DRY	30	40	34	36	34	98	167
				WET	35	49	39	39	39	118	1200
	Rockwell hardness	D785	scaleM /scaleR	DRY	89/120	94/120	85/—	90/—	85/120	89/120	—/114
				WET	—	74/—	—	—	60/108	60/108	—/98
	Taber abrasion	D1044	$\times 10^{-6}$kg /1000times	WET	—	—	8	—	22	9	7
Thermal	Coefficient of linear expansion (para to flow)	D696	$\times 10^{-5}$/K	DRY	3	4	4	—	6	3	7
	Temperature of deflection under load	D648	1.82MPa ℃	DRY	220	240	191	245	160	248	77
			0.46MPa	DRY	—	—	250	250	240	260	225
	Thermal conductivity		W/(m・K)	DRY	—	—	—	—	—	—	—
	Specific heat		J/(kg・K)	DRY	—	—	—	—	—	—	—
Flamm-ability	UL	(UL94)	—	DRY	—	—	—	—	HB	HB	—
	Oxygen index	D2863	%	DRY	—	—	—	—	—	—	—
Mold shrinkage, 3mm t,para/perp to flow		(Asahi Kasei)	%	DRY	0.7/0.8	0.5 - 1.1	0.5 - 1.3	0.5 - 1.0	1.0 - 1.1	0.5/1.0	1.7 - 2.2
Features					Smooth surface, Low warpage	High stiffness, Dimension stability, Low warpage	Low abrasion, Good elec. prop.	Low Abrasion, Good elec. prop. Soldering heat res.	High heat res., Low warpage	Low abrasion, low wear	Medium-impact
Typical uses					Automotive exterior parts	Engine covers	Slide switch, Insulators		Sockets	Bearings	Clips, Fasteners

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Leona properties (ASTM)

Items		Test method (ASTM)	Units	Grade	Special Grades	Flame-Retardant				
					TR380	FR200	FR370	FG170	FG172	FG173
Specific gravity		D792	—	DRY	1.08	1.16	1.16	1.48	1.52	1.65
Water absorption		—	%	WET	1.7	2.4	2.3	0.9	0.9	0.6
Mechanical	Tensile strength	D638	MPa	DRY	54	79	83	132	153	167
				WET	37	47	58	108	123	142
	Elongation (at break)	D638	%	DRY	70	25	7	2.5	2.5	2.5
				WET	220	80	70	2.7	2.7	2.7
	Flexural strength	D790	MPa	DRY	79	118	128	191	216	250
				WET	39	44	56	152	177	221
	Flexural modulus	D790	GPa	DRY	2.0	2.9	3.3	6.4	7.6	10.8
				WET	1.0	1.1	1.3	4.9	5.9	8.3
	Izod impact strength (notched)	D256	J/m	DRY	1110	29	29	49	63	88
				WET	1320	118	98	59	72	98
	Rockwell hardness	D785	scaleM /scaleR	DRY	—/107	80/118	85/120	95/—	95/—	100/—
				WET	—/89	—/90	55/110	55/—	55/—	60/—
	Taber abrasion	D1044	$\times 10^{-6}$kg /1000times	WET	6	8	7	24	24	29
Thermal	Coefficient of linear expansion (para to flow)	D696	$\times 10^{-5}$/K	DRY	11	8	7	3	3	3
	Temperature of deflection under load	D648	1.82MPa ℃	DRY	73	66	80	248	248	252
			0.46MPa	DRY	215	209	240	255	255	260
	Thermal conductivity		W/(m・K)	DRY	—	0.2	—	—	—	—
	Specific heat		J/(kg・K)	DRY	—	1670	—	—	—	—
Flamm-ability	UL	(UL94)	—	DRY	—	V-0	V-0	V-0	V-0	V-0
	Oxygen index	D2863	%	DRY	—	32	36	38	37	—
Mold shrinkage, 3mm t,para/perp to flow		(Asahi Kasei)	%	DRY	1.7 - 2.5	1.3 - 2.0	0.9 - 1.6	0.6/1.0	0.4/0.9	0.3/0.7
Features					High-impact	Halogen-free	Soldering heat res, Halogen-free	Halogen 15%GF	Halogen 20%GF	Halogen 30%GF
Typical uses					Canisters, Cable ties	Electrical and Electronic parts(Switches,Connectors)				

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