Grades and Physical Properties Chart - Mechanical, Structural and Tribological Applications

				A	R	L	E		N				
				A/G Series (For mechanical and structural parts)			A/E Series (For tribolic applications)				Remarks		
			Test method				non-reinforced		non-reinforced, flameretardant				
Physical Properties		Unit	ASTM	A315	A335	A350	G335	AE4200	AE4200N	AE2230	PA66	PA MXD6	PPS
Glass fiber content		%	-	15	35	50	35	0	0	30	30	40	40
Specific gravity		-	D792	1.30	1.48	1.63	1.47	1.10	1.40	1.37	1.37	1.53	1.67
Mechanical Properties													
Tensile strength	dry	MPa	D638	120	240	300	200	80*3	70*3	200	180	220	170
	(moist)*1			(110)	(220)	(270)	(180)	(70)*3	(60)*3	(180)	(130)	(150)	(-)
Tensile elongation	dry	%	D638*2	3	3	3	3	50*3	4*3	4	4	2	2
	(moist)*1			(3)	(3)	(3)	(3)	(50)*3	(4)*3	(4)	(4)	(2)	(-)
Flexural strength	dry	MPa	D790	190	360	430	340	110	120	270	260	310	250
	(moist)*1			(170)	(320)	(390)	(310)	(100)	(110)	(240)	(180)	(210)	(-)
Flexural modulus	dry	MPa	D790	6,000	12,000	17,000	11,000	2,400	3,000	9,000	8,800	13,000	13,000
	(moist)*1			(5500)	(11,000)	(15,000)	(10,000)	(2,200)	(2,700)	(8,000)	(6,000)	(11,000)	(-)
Izod impact strength (notched)	dry	J/m	D256	50	130	150	100	200	70	100	130	80	80
	(moist)*1			(70)	(150)	(160)	(120)	(220)	(80)	(110)	(150)	(80)	(-)
Rockwell hardness		M scale	D785	105	110	110	-	65 (R110)	80	95	95	95	100
Thermal Properties													
Melting point		℃	-	320	320	320	300	320	320	320	260	240	280
Glass transition point		℃	-	125	125	125	140	125	125	125	50	80	90
Deflection temp. under load (1.82MPa)		℃	D648	290	310	310	280	135	145	300	255	230	265
Coefficient of linear thermal expansion	Flow direction	$X10^{-5}$/℃	D696	3.4	2.0	1.8	-	8.0	6.5	2.6	2.2	2.0	2.0
	Vertical direction			5.5	4.5	4.2	-	8.2	6.7	6.0	9.0	4.5	4.0
Electrical Properties													
Volume resistivity	(dry)	Ω・cm	D257	10^{16}	10^{16}	10^{16}	10^{16}	10^{16}	10^{15}	10^{16}	10^{15}	10^{16}	10^{16}
Dielectric constant (10^6 Hz)	(dry)	-	D150	4.2	4.5	4.5	-	3.3	3.3	3.7	3.3	4.0	3.8
Dielectric dissipation factor (10^6 Hz)	(dry)	-	D150	0.020	0.018	0.018	-	0.018	0.014	0.018	0.015	0.009	0.0014
Dielectric breakdown voltage	(dry)	kV/mm	D149	25	27	29	28	23	31	27	23	31	17
Other Properties													
Mold shrinkage (2mmt)	Flow direction	%	D955	0.5	0.3	0.2	0.2	0.9	0.8	0.4	0.4	0.2	0.2
	Vertical direction			0.6	0.6	0.6	0.5	0.9	1.0	0.7	0.8	0.6	0.4
Water absorption (24 hr in water) (2mmt)	23℃	%	D570	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.8	0.2	0.02
	100℃	%		2.5	1.8	1.2	1.7	2.6	2.0	1.7	4.5	3.2	0.3
Flammability		-	UL94	H B	H B	HBequiv.	HBequiv.	H B	V-0	HBequiv.	H B	H B	V-0

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Notes:

The above figures are just representative values but not specification values.
*1 Moist: In a saturated state in the atmosphere at 23℃ and a relative humidity of 65%
*2 Elongation was measured between the chucks.
*3 Test specimens of the non-reinforced grades were 2 mmt.

Unit conversion:
Tensile strength, flexural strength, flexural modulus.
1 Mpa = 10.2 kg/cm²

Izod impact strength.
1 J/m=0.102 kg • cm/cm