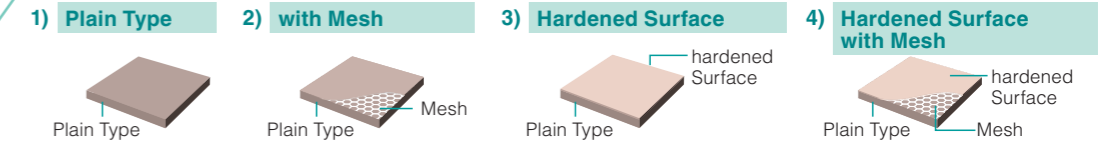


**Construction**



**Typical Product Properties**

Test Properties		Unit	GR-ae	GR-d		GR-Sd	GR25A	GR45A	Test Method	
<b>Physical Properties</b>	Construction	(See P.16)	1) 2) 3) 4)	1) 2) 3) 4)		3)	1) 2) 3) 4)	1) 3)	-	
	Thickness*	mm	0.3 to 5.0	0.5 to 5.0		2.0 to 5.0	0.3 to 5.0	0.5, 1.0   1.5 to 5.0	ASTM D 734	
	Specific Gravity	-	2	2.6		2.5	2.6	3.2	ASTM D 792	
	Hardness	Shore 00		15	50		15	50	60   43	ASTM D 2240
		ASKER C		5	25		5	18	35   20	ISO 7619
	Color	-	Apricot	Gray		Dark Gray	Gray	Gray		Visual
Elongation	%	300	100		230	200	50		ASTM D 412	
<b>Electrical Properties</b>	Volume Resistivity	Ohm-m	1x10 <sup>12</sup>	1x10 <sup>12</sup>		1x10 <sup>9</sup>	1x10 <sup>11</sup>	1x10 <sup>11</sup>	ASTM D 257	
	Breakdown Voltage	kV/mm	17	18		10	15	17	ASTM D 149	
	Dielectric Strength	kV/mm	11	14		10	9	14	ASTM D 149	
	Dielectric Constant	50Hz		4.91	5.82		6.44	6.60	8.98	ASTM D 150
		1kHz		4.65	5.56		6.20	6.05	8.63	
		1MHz		4.5	5.46		5.97	5.74	8.05	
	Dissipation Factor	50Hz		0.0513	0.0483		0.0239	0.0826	0.0249	ASTM D 150
1kHz			0.0202	0.0147		0.0153	0.0300	0.0219		
1MHz			0.0035	0.0029		0.0072	0.0052	0.0068		
<b>Thermal Properties</b>	Thermal Conductivity unit : W/m-K	Hot Wire	1.5	1.5		1.5	2.8	6.0	ASTM D 2326	
		Hot Disk	1.3	1.3		1.3	2.5	4.5	ISO/CD 22007-2	
	Recommended Operating Temp.	°C	-40 to +150	-40 to +150		-40 to +150	-40 to +150	-40 to +150		
		°F	-40 to +302	-40 to +302		-40 to +302	-40 to +302	-40 to +302		
Flame Retardant	-	V-0**	***		V-1	V-0	V-0		UL94	

a) Hardness: The highest measured value of Shore 00 and ASKER C.  
 b) Thermal Conductivity : Measured by Hot Wire Test method for reference. → See P.31  
 : Measured by Hot Disk Test method according to ISO/CD 22007-2. → See P.31  
 c) 0.3mm Thickness of GR25A is only established "GR25A-0H2-30GY".  
 \* Some details of thickness. → See P.28

\*\* 50G-F2ae, 50G-HF2ae : V-1  
 \*\*\* GR-d: Flame Retardant

50 up to 500G-d	: V-0	50 up to 500GH-d	: V-0
50 up to 250G-Fd	: V-1	50 up to 250G-HFd	: V-1
300G-Fd	: V-0	300G-HFd	: V-0

[Note]  
 GR25A : replacement for GR-L  
 GR45A : replacement for GR-m

**Thermal Resistance**

unit : K-cm<sup>2</sup>/W (K-in<sup>2</sup>/W)

Pressure	GR-ae				GR-d				GR-Sd			GR25A					GR45A			
	50G-ae	100G-ae	200G-ae	400G-ae	50G-d	100G-d	200G-d	400G-d	200G-Sd	300G-Sd	400G-Sd	0H2-30GY	00-50GY	00-100GY	00-200GY	00-400GY	00-50GY	00-100GY	00-200GY	00-400GY
100kPa (14.5psi)	4.08 (0.63)	6.09 (0.94)	9.74 (1.51)	13.92 (2.16)	4.45 (0.69)	6.64 (1.03)	9.78 (1.52)	20.95 (3.25)	9.58 (1.48)	11.55 (1.79)	14.21 (2.20)	2.29 (0.36)	1.97 (0.31)	3.67 (0.57)	6.65 (1.03)	11.56 (1.79)	1.78 (0.28)	2.37 (0.37)	3.60 (0.56)	6.16 (0.95)
300kPa (43.5psi)	3.21 (0.50)	4.44 (0.69)	6.88 (1.07)	9.85 (1.53)	3.44 (0.53)	5.25 (0.81)	7.31 (1.13)	15.61 (2.42)	7.37 (1.14)	8.28 (1.28)	10.99 (1.70)	1.80 (0.28)	1.61 (0.25)	2.82 (0.44)	5.03 (0.78)	7.73 (1.20)	1.54 (0.24)	2.09 (0.32)	3.13 (0.49)	4.51 (0.70)
500kPa (72.5psi)	2.78 (0.43)	3.76 (0.58)	5.52 (0.86)	8.09 (1.25)	2.96 (0.46)	4.71 (0.73)	6.24 (0.97)	13.11 (2.03)	7.31 (1.13)	8.21 (1.27)	8.82 (1.37)	1.58 (0.24)	1.46 (0.23)	2.49 (0.39)	4.22 (0.65)	6.48 (1.00)	1.33 (0.21)	1.94 (0.30)	2.73 (0.42)	3.44 (0.53)

d) Test method: Fujipoly Test method, FTM-P3050 by TIM 1300 Tester which is ASTM D 5470 equivalent. → See P.32