Physical Properties

Non-PVC Materials

Physical Properties of Non-PVC Plates (PP, PVDF, PC, PET)

Evaluation Items		Unit	Product Types	PP Plates	PVDF Plates	Polycarbonate Plates		Super PET Plates				PET Guards	Testing Methods
				Standard PP	FMPVDF	Standard Polycarbonate	Static-Dissipative Polycarbonate	Standard	For Industrial Purposes	Static-Dissipative Hardened Surface	Static-Dissipative	Insect-Proof	
				RPP1350	FMPVDF F300	PC1600	PCND L 78610	PET-6010	PET-6010A	PETND MRG60	PETND-76600	PET-6025	
Physical Properties	Specific Gravity			0.91	1.78	1.20	1.20	1.27	1.27	1.27	1.27	1.27	ISO 1183-1 and -2
	Rockwell Hardness	M Scale		52	77	67	67	44	44	48	46	44	JIS K 7202
		R Scale		104	116	125	125	114	114	116	116	114	
Mechanical Properties	Tensile Yield Stress	MPa		33	53	63	63	52	52	52	52	52	JIS K 7161-2-1B/50
	Nominal Tensile Strain at Break	%		30	15	90	90	28	28	28	28	28	
	Tensile Elasticity	MPa		1500	—	2250	2250	2000	2000	2000	2000	2000	JIS K 7161-2-1B/1
	Charpy Notched Impact Strength	kJ/m^2		6.6	10.0	13.0	13.0	6.4	6.4	6.4	6.4	6.4	JIS K 7111-1 1epA
	Flexural Stress	MPa		42	64	91	91	71	71	71	71	71	JIS K 7171
	Flexural Elasticity	MPa		1500	1800	2300	2300	2000	2000	2000	2000	2000	
	Compressive Yield Stress	MPa		52	78	78	78	60	60	60	60	60	JIS K 7181-B5
	Compressive Elasticity	MPa		1200	—	1900	1900	1800	1800	1800	1800	1800	JIS K 7181-A1
	Shear Fracture Stress	MPa		*2 32	—	65	—	*2 55	*2 55	*2 55	*2 55	*2 55	JIS K 7214
Thermal Properties	Deflection Temperature under Load	℃	0.45MPa	123	140	—	—	—					JIS K 7191
		℃	1.80MPa	—	—	139	139	69	69	69	69	69	
	Vicat Softening Temperature	℃	Method A (10 N)	154	165	—	—	—	—	—	—	—	JIS K 7206
		℃	Method B (50 N)	94	—	150	150	74	74	74	74	74	
	Rate of Dimensional Change on Heating	%	Vertical	—	—	3.5	—	—					JIS K 6735
		%	Horizontal	—	—	–0.2	—	—					
	Linear Thermal Expansion Coefficient	$\times10^{-5}\cdot K^{-1}$		11.1	13.0	6.5	6.5	7.5	7.5	7.5	7.5	7.5	JIS K 7197
	Thermal Conductivity	W/m·K		0.21	—	0.19	—	0.23	0.23	0.23	0.23	0.23	Laser flash method
	Specific Heat Capacity	J/g·K		2.05	—	1.30	1.30	1.35	1.35	1.35	1.35	1.35	JIS K 7123
	Flame Resistance	—		Flammable	Self-extinguishing	—	—	Self-extinguishing					JIS K 6911
Electrical Properties	Surface Resistivity	Ω/□		10^{15} or more			$10^{6\sim9}$	10^{15} or more	10^{15} or more	$10^{6\sim9}$	$10^{6\sim9}$	10^{15} or more	JIS K 6911
	Volume Resistivity	Ω·m		10^{13} or more				10^{13} or more					JIS K 6911
	Breakdown Strength	MV/m		27	—	20	20	18	18	—	—	—	JIS K 6911
	Permittivity (1 MHz)	—		2	—	3	3	3	3	3	—	—	JIS K 6911
	Dissipation Factor (1 MHz)	—		0.001	—	0.009	0.060	0.025	0.025	0.136	—	—	JIS K 6911
	Stackability			—				—					JIS K 6745
	Water Absorption	%		0.001	0.008	0.240	0.150	0.100	0.100	0.100	—	—	JIS K 7209
Optical Properties	Total Light Transmittance	%		—	—	89	86	86	85	75	80	45	JIS K 7361-1
	Haze			—	—	—	—	0.2	0.3	0.9	1.8	0.5	JIS K 7136
	Hue (Color)			Natural	Natural	Transparent	Transparent	Transparent	Transparent	Transparent	Transparent	Orange tinted	—

• The above data are a series of test results for a 5 mm thick specimen and given here without guarantee (values marked *1 refer to a test specimen that is 3 mm thick).