



Property Table (Polycarbonate for Optical Automotive lighting applications)



Features				Light guiding Standard	Light guiding High strength	Light diffusion Standard Diffusivity:Medium	Light diffusion Weather resistance Diffusivity:Medium	Light diffusion Weather resistance Diffusivity:High		
Grades				LC1500	LC1700	R1700(W3204ENU)	V1700R(W3026E)	V1700R(W3032E)		
Principal use				Automotive lighting (AMECA listed)	Automotive lighting (AMECA listed)	-	-	-		
Properties	Units	Test Method	condition	>PC<	>PC<	>PC<	>PC<	>PC<		
Density	g/cm ³	ISO 1183 (JIS K7112)		1.2	1.2	1.2	1.2	1.2		
Water Absorption	%	ISO 62 (JIS K7209)	24h 50%RH	0.23	0.23	0.23	0.23	0.23		
Fluidity										
Melt Volume-Flow Rate (MVR)	cm ³ /10min	ISO 1133 (JIS K7210)		300°C 1.20kg 65	300°C 1.20kg 40	300°C 1.20kg 24	300°C 1.20kg 24	300°C 1.20kg 24		
Mechanical properties										
Tensile Stress at Yield*1	MPa	ISO 527-1,2 (JIS K7161, 7162)		Y65	Y65	Y65	Y65	Y65		
Nominal tensile strain at break*2	%			tB80	tB95	tB90	tB90	tB90		
Flexural Strength	MPa	ISO 178 (JIS K7171)		90	90	90	90	90		
Flexural Modulus	GPa			2.3	2.3	2.3	2.3	2.3		
Charpy Impact Strength	kJ/m ²	ISO 179-1 (JIS K7111)	notched at 23°C	15	40	10	10	10		
Rockwell Hardness	-	ISO 2039-2 (JIS K7202-2)	R scale/ M scale	R120/M50	R120/M50	-	-	-		
Thermal properties										
Temperature of deflection under load	°C	ISO 75-1,2 (JIS K7191-1,2)	0.45MPa 1.8MPa	- 127	- 128	- 125	- 125	- 125		
Linear Thermal Expansion coefficient	×10 ⁻⁵ /°C	ISO 11359-2		6.5	6.5	6.5	6.5	6.5		
Mould Shrinkage	%	Idemitsu Method	2mm MD	0.5~0.7	0.5~0.7	0.5~0.7	0.5~0.7	0.5~0.7		
	%		2mm TD	0.5~0.7	0.5~0.7	0.5~0.7	0.5~0.7	0.5~0.7		
Optical properties										
Total Luminous Transmittance	%	ISO 13468-1 (JIS K7361-1)	3mm	90	90	90/80/60 (1mm/2mm/3mm)	90/80/60 (1mm/2mm/3mm)	61/52/44 (1mm/2mm/3mm)		
Haze	%	ASTM D1003	3mm	-	-	98/99/99 (1mm/2mm/3mm)	98/99/99 (1mm/2mm/3mm)	99/99/99 (1mm/2mm/3mm)		
Diffusion angle	degree	Idemitsu Method	1mm/2mm/3mm			19/31/40	19/31/40	60/63/65		
Refractive Index	-	ASTM D542		1.585	1.585	-	-	-		
Light reflection rate(Y)	-		D65 type,10°	-	-	-	-	-		
Yellow Index (YI)	-	ASTM D1925		1	1	-	-	-		
Flammability										
Flammability Rating	mm thickness	UL94	class/mini-thickness	V-2/0.42	V-2/0.40	-	-	-		
Comparative tracking index(CTI)	PLC level	UL746A		-	-	-	-	-		
UV light,Water exposure and immersion	-	UL746C		-	-	-	-	-		
Thermal Index RTI Elec	°C	UL746B		80	80	-	-	-		
RTI Imp				80	80	-	-	-		
RTI Str				80	80	-	-	-	-	
AMECA	-			Listed	Listed	-	-	-		
Electrical properties										
Dielectric Strength	kV/mm	IEC 60243-1 (JIS C2110)		-	-	30	30	30		
Arc Resistance	PLC level	ASTM D495		-	-	-	-	-		
Volume Resistivity	Ω·cm	ASTM D257		-	-	1E+16<	1E+16<	1E+16<		
Dielectric Constant	-	IEC 60250	1MHz	-	-	2.85	2.85	2.85		
Dielectric dissipation Factor	-		1MHz	-	-	0.001	0.001	0.001		
Standard Molding Parameters										
Cylinder Temperature				240~260°C	250~270°C	260~320°C	260~320°C	260~320°C		
Mold Temperature				80~120°C	80~120°C	80~120°C	80~120°C	80~120°C		
Pre-drying condition				120°C, 4~8hours	120°C, 5~8hours	120°C, 5~8hours	120°C, 5~8hours	120°C, 5~8hours		

*1 Y:Yield strength
*2 tB : Nominal tensile strain at break

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