

# Lupilon Light Diffusion Grades

## General properties

Properties	Test Method	Terms	Units	lupilon EFT2200U	lupilon EFD2100U	lupilon EFD2105U	lupilon EFD2110U	lupilon EFD2230U	lupilon EKD2104U	lupilon EKD2108U	lupilon EKD2115U	lupilon EKD2120U
<b>Physical Properties</b>												
Density	ISO 1183	-	g/cm <sup>3</sup>	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
<b>Rheological Properties</b>												
Melt Volume-flow Rate	ISO 1133	300 , 1.2kg	cm <sup>3</sup> /10min	5	5	5	4	4	4	5	5	4
<b>Mechanical Properties</b>												
Yield Stress	ISO527-1 527-2	-	Mpa	63		64	65	66				
Yield Strain			%	5.9		6	7	6				
Nominal Strain at Break			%	95		70 ~ 120	70 ~ 120	70 ~ 120				
Flexual Strength	ISO 178	-	MPa	97		92	92	97				
Flexual Modulus				2350		2310	2200	2300				
Charpy Notched impact	ISO 179-1 ISO179-2	3mmt	KJ/m <sup>2</sup>	-		12	17	13				
		4mmt	KJ/m <sup>2</sup>	70		46	-	-				
<b>Thermal Properties</b>												
Temperature of Deflection Under Load	ISO75-1、ISO75-2	1.80MPa		125		126	122	123				
Coefficient of Linear Thermal Expansio	ISO 11359-2	MD	1/	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05
		TD	1/	6.5E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05
Flammability	UL94	1.0mm		-	-	-	-	-	V-0	V-0	V-0	V-0
		1.2mm	-	-	V-0	V-0	V-0	-	V-0	V-0	V-0	V-0
		1.5mm	-	V-1	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0
		2.0mm	-	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0
<b>Optical Properties</b>												
Total-Light Transmittance	ASTM D1003	1mmt	%	-	85	84	81	67	72	62	58	55
		2mmt	%	-	79	71	66	51	55	50	47	44
		3mmt	%	88	56	58	53	43	45	42	40	36
Haze	ASTM D1003	1mmt	%	-	26	96	98	99	99	99	99	99
		2mmt	%	-	42	99	99	99	99	99	99	99
		3mmt	%	0.5	56	99	99	99	99	99	99	99
Diffusivity	1	1mmt	%	-	12	15	28	51	40	56	61	64
		2mmt	%	-	12	35	45	61	54	63	65	66
		3mmt	%	-	8	44	50	64	59	65	67	68
D.L.D. (Degree of Light Distribution)	2	1mmt	°	-	2	11	21	43	27	50	57	60
		2mmt	°	-	2	26	35	56	46	58	61	62
		3mmt	°	-	2	33	42	59	52	61	64	65
<b>Molding Shrinkage</b>												
Molding Shrinkage	3mmt	M.T.;80	%	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7
<b>Recommendation Molding Conditions</b>												
pre-drying Condition		Temperature		120	120	120	120	120	120	120	120	120
		Time	Hrs	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8	4 ~ 8
Resin Temperature		Mold Temperature		70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100	70 ~ 100
		Cylinder Temperatur		270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300	270 ~ 300

The listed properties are portrayed as general information only and not product specifications.

1 Diffusivity is determined by goniophotometer. Diffusivity is calculated as following equation.  

$$\text{Diffusivity} = 100 * ((\text{Brightness at } 20\text{degree}) + (\text{Brightness at } 70\text{degree})) / (\text{Brightness at } 5\text{degree} * 2)$$

2 D.L.D. is determined by goniophotometer. D.L.D. is the angle whose brightness is equivalent to half value of 0 angle. Higher Diffusivity and D.L.D. Lead to superior diffusion properties.