



HOYA CANDEO OPTONICS CORPORATION

Thickness (1.5) mm

ND5

Transmittance (T) units: %

λnm	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	2.3	2.8	3.3	3.8	3.8	4.3	4.9	5.0	4.8	4.6	4.4	4.4	4.5	4.6	4.8	4.9	4.8	4.5	4.3	4.2
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	4.3	4.6	4.9	5.1	5.3	5.6	6.0	6.7	7.9	9.5	11.2	12.7	14.0	14.9	15.7	16.3	16.8	17.2	17.5	17.8
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	18.0	18.2	18.4	18.5	18.6	18.6	18.6	18.5	18.5	18.4	18.3	18.2	18.0	17.9	17.8	17.6	17.5	17.4	17.3	17.2
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1120	1140	1160	1180	1200				
T	17.1	17.0	16.9	16.8	16.8	16.8	16.7	16.8	16.8	16.8	16.8	17.0	17.2	17.5	18.0	18.5				

Refractive Index/Absorption coefficient/Reflection coefficient

λnm	400	500	600	700	800	900	1000
n	1.538	1.524	1.516	1.512	1.509	1.507	1.506
K	8.3E-05	8.5E-05	1.0E-04	8.4E-05	7.4E-05	8.2E-05	9.6E-05
P	0.914	0.917	0.919	0.920	0.921	0.921	0.922

Classes of Bubbles and Inclusions

Bubble Class
3

Color Specification

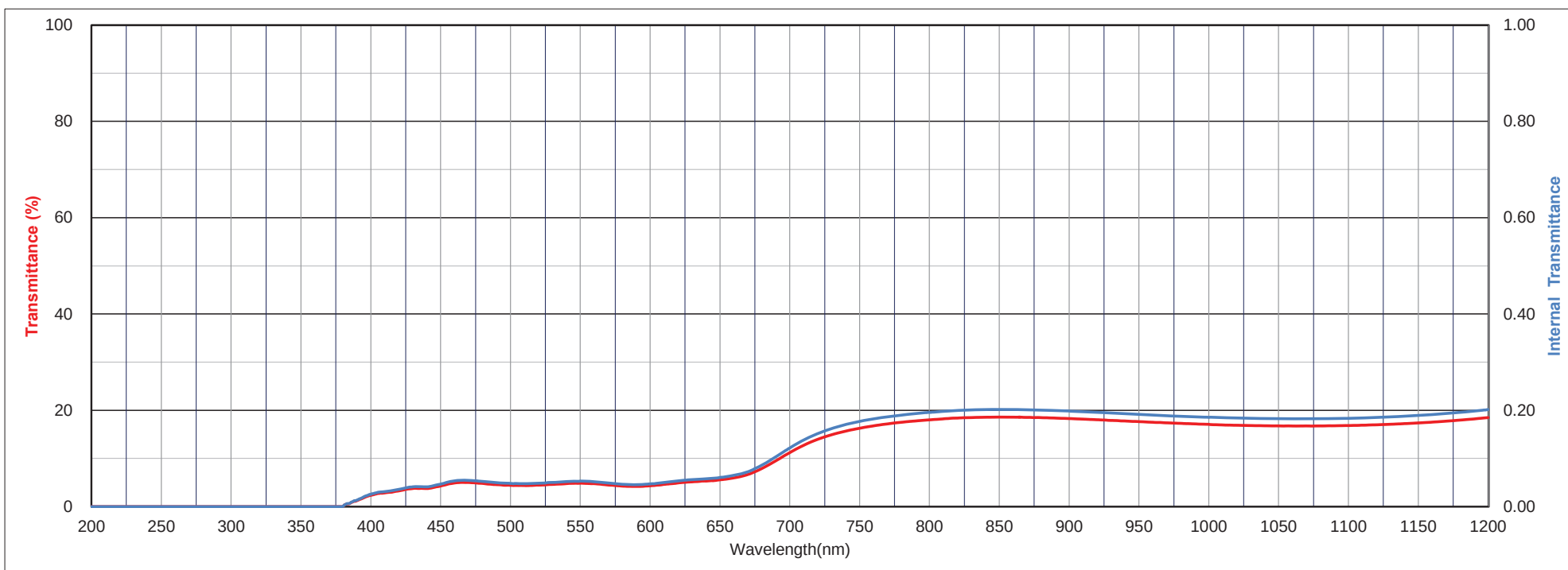
	x	y	Y	λ _d	P _e
A	0.458	0.406	5	599	6
C	0.318	0.324	5	577	4
D65	0.320	0.337	5	577	4

Properties

Chemical		Thermal				Mechanical		Others
D _w	D _A	T _g	T _s	α _{-30/70}	α _{100/300}	H _k	F _A	d
1	3	490	565	-	65	530	100	2.41

Tolerance of Transmittance (T)

Average Transmittance at 400nm-700nm	
Tav(%)	OD
5±1	1.3±0.1



All data is mean values of various melts.

The content of this catalog is accurate as of April ,2014



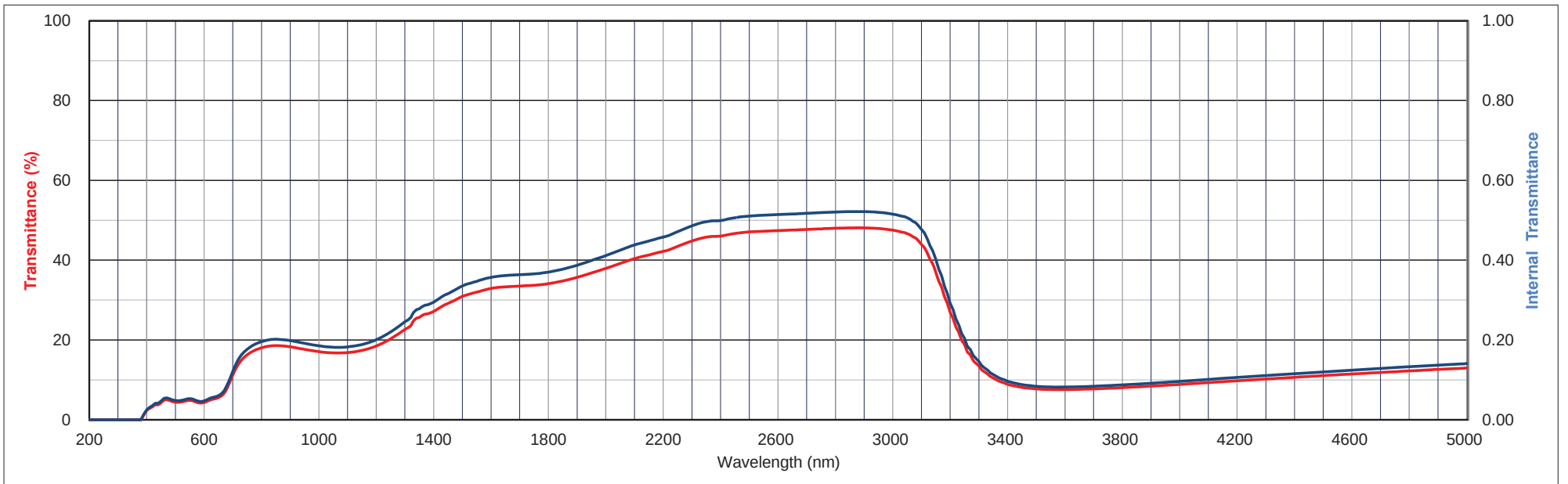
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λnm	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
λnm	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
T	2.3	2.8	3.3	3.8	3.8	4.3	4.9	5.0	4.8	4.6	4.4	4.4	4.5	4.6	4.8	4.9	4.8	4.5	4.3	4.2
λnm	600	610	620	630	640	650	660	670	680	690	700	710	720	730	740	750	760	770	780	790
T	4.3	4.6	4.9	5.1	5.3	5.6	6.0	6.7	7.9	9.5	11.2	12.7	14.0	14.9	15.7	16.3	16.8	17.2	17.5	17.8
λnm	800	810	820	830	840	850	860	870	880	890	900	910	920	930	940	950	960	970	980	990
T	18.0	18.2	18.4	18.5	18.6	18.6	18.6	18.5	18.5	18.4	18.3	18.2	18.0	17.9	17.8	17.6	17.5	17.4	17.3	17.2
λnm	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
T	17.1	17.0	16.9	16.8	16.8	16.8	16.7	16.8	16.8	16.8	16.8	16.9	17.0	17.1	17.2	17.4	17.5	17.7	18.0	18.2
λnm	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370	1380	1390
T	18.5	18.8	19.1	19.5	19.9	20.3	20.7	21.2	21.6	22.1	22.6	23.0	23.6	24.8	25.4	25.7	26.1	26.5	26.6	26.8
λnm	1400	1410	1420	1430	1440	1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590
T	27.2	27.6	28.0	28.5	28.9	29.2	29.5	29.8	30.2	30.6	30.9	31.2	31.4	31.6	31.8	32.0	32.2	32.4	32.6	32.8
λnm	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790
T	32.9	33.0	33.1	33.2	33.3	33.3	33.4	33.4	33.4	33.5	33.5	33.5	33.6	33.6	33.7	33.7	33.8	33.8	33.9	34.0
λnm	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
T	34.1	34.2	34.3	34.5	34.6	34.8	35.0	35.1	35.3	35.5	35.7	35.9	36.1	36.3	36.6	36.8	37.0	37.2	37.5	37.7
λnm	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500	2550	2600	2650	2700	2750	2800	2850	2900	2950
T	37.9	39.2	40.4	41.3	42.2	43.5	44.8	45.8	46.0	46.7	47.1	47.3	47.4	47.6	47.7	47.8	48.0	48.1	48.1	47.9
λnm	3000	3050	3100	3150	3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950
T	47.5	46.6	43.9	37.0	27.0	18.8	13.5	10.5	8.9	8.1	7.7	7.6	7.6	7.6	7.7	7.9	8.0	8.2	8.4	8.6
λnm	4000	4050	4100	4150	4200	4250	4300	4350	4400	4450	4500	4550	4600	4650	4700	4750	4800	4850	4900	4950
T	8.9	9.1	9.3	9.5	9.8	10.0	10.2	10.4	10.6	10.8	11.1	11.3	11.5	11.7	11.8	12.0	12.2	12.4	12.6	12.8
λnm	5000																			
T	13.0																			



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