

Neutral Density Filter

ND-13

Catalog Thickness t = 2.5 mm

Reflection Factor $P_d = 0.921$

Diagram-6

Transmittance (T) & Internal Transmittance (τ) units: (%)

λ_{nm}	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440
T																.03	.37	1.6	1.3	5.0	8.8	9.3	9.3	10.1	10.3
τ																.03	.40	1.7	1.4	5.4	9.6	10.1	10.1	11.0	11.2
λ_{nm}	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690
T	11.1	13.0	13.6	13.3	12.9	12.7	12.6	12.7	12.9	13.4	13.8	13.8	13.7	12.9	12.1	11.9	12.1	12.4	12.5	12.5	12.4	12.4	13.0	14.1	15.6
τ	12.1	14.1	14.8	14.4	14.0	13.8	13.7	13.8	14.0	14.5	15.0	15.0	14.9	14.0	13.1	12.9	13.1	13.5	13.6	13.6	13.5	13.5	14.1	15.3	16.9
λ_{nm}	700	710	720	730	740	750	800	850	900	950	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400
T	16.9	17.7	18.0	18.1	17.7	17.2	14.2	11.8	10.2	8.8	7.9	6.9	7.3	9.6	14.1	19.8	23.7	25.7	27.5	29.7	32.2	34.4	35.7	37.1	39.0
τ	18.4	19.2	19.5	19.7	19.2	18.7	15.4	12.8	11.1	9.6	8.6	7.5	7.9	10.4	15.3	21.5	25.7	27.9	29.9	32.2	35.0	37.4	38.8	40.3	42.3

Refractive Indices

Symbol	i	h	g	F'	F	e	d	D	C'	C	r	A'	t
λ_{nm}	365.0	404.7	435.8	480.0	486.1	546.1	587.6	589.3	643.8	656.3	706.5	768.2	1,014.0
n			1.521			1.512	1.510						

Abbe-Number

$$V_d = \frac{n_d - 1}{n_F - n_C} =$$

Color Specifications

	x	y	Y	λ_d	P_e
A	.446	.416	12.9	566	5
C	.313	.333	12.9	559	5
D_{65}	.315	.345	12.9	558	5

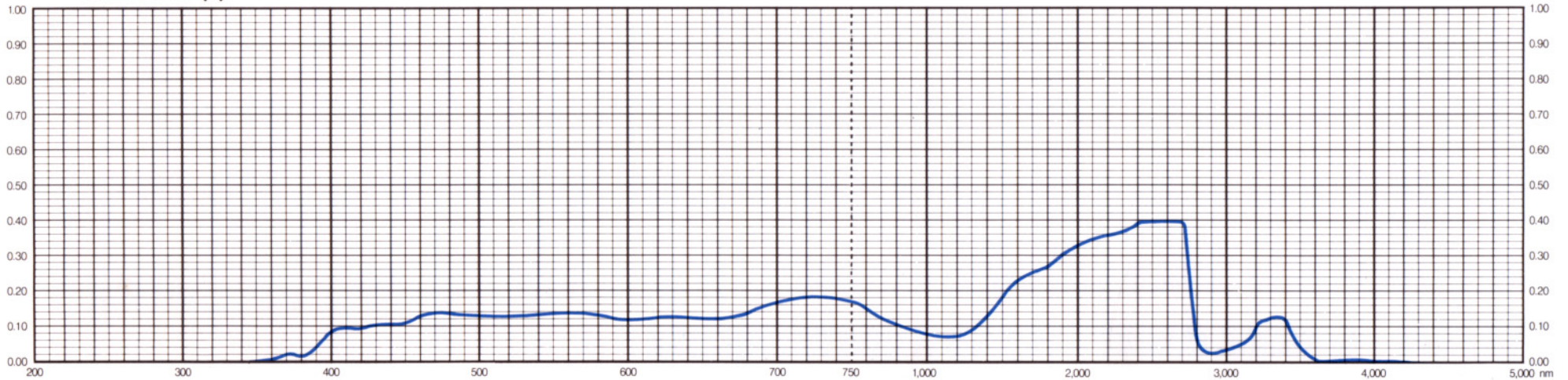
Properties

Chemical		Thermal				Mechanical		Other
D_w	D_A	T_g	T_s	$\alpha_{-30/70}$	$\alpha_{100/300}$	H_K	F_A	S
1	1	535	595	58	68	530	100	2.43

Tolerances of Transmittance (T)

Average Transmittance at 400 nm-700 nm	Average Optical Density
Tav (%)	Dav
12.5 ± 2	0.90

Transmittance (T)



All data are mean values of various melts.