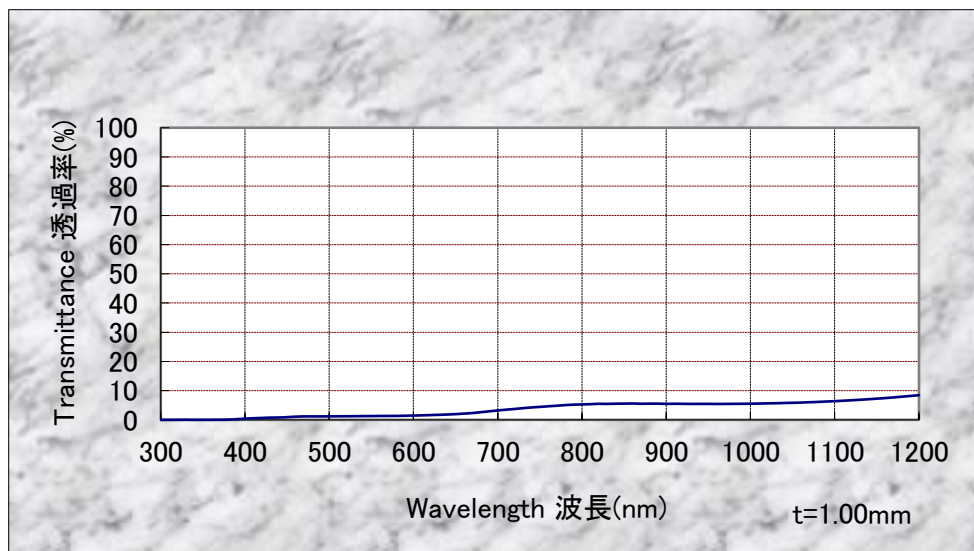


Light Reduction Filter

MATSUNAMI GLASS IND., LTD.

Product name : ND13-4



T=1.00mm

λ	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.2
λ	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690	700	710
T	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.3	2.6	2.9	3.2	3.4
λ	720	730	740	750	760	770	780	790	800	810	820	830	840	850	860	870	880	890	900	910	920
T	3.7	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.2	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.4	5.5	5.4
λ	930	940	950	960	970	980	990	1000	1010	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120	1130
T	5.4	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.4	6.5	6.7	6.8
λ	1140	1150	1160	1170	1180	1190	1200														
T	7.0	7.2	7.4	7.6	7.9	8.1	8.4														

<Characteristics>

Product name	ND 1 3 - 4
Refractive ratio (nD)	1 . 5 0 3
Expansion coefficient $\alpha$ [10 <sup>-7</sup> /°C]	6 9 . 2 ( 1 0 0 / 3 0 0 )
Transition point T <sub>g</sub> [°C]	4 8 2
Deformation point A <sub>t</sub> [°C]	5 5 3
Softening point T <sub>s</sub> [°C]	—
Knoop hardness Hk	— (100g/15sec)
Density [g/cm <sup>3</sup> ]	2 . 4 6

60°C/90% RH	—
Optical property (non-coated)	1.00mm thickness
400nm	0 . 4 %
500nm	1 . 2 %
600nm	1 . 4 %
700nm	3 . 2 %
Half maximum (50%)	—
Composition type	Silicate
RoHS regulated substances (Pb,Hg,Cr(VI),Cd)	Not contained
Halogenated substances	Fluorine contained