

**SCHOTT**  
glass made of ideas



# Optical Glass

Datasheets of Inquiry Glasses

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## Explanations

### Refractive indices

The refractive indices  $n$  are listed for a maximum of 23 wavelengths in the range between 248.2 nm and 2325.4 nm.

### Constants of the dispersion formula

From the Sellmeier dispersion formula

$$n^2(\lambda) - 1 = \frac{B_1 \lambda^2}{\lambda^2 - C_1} + \frac{B_2 \lambda^2}{\lambda^2 - C_2} + \frac{B_3 \lambda^2}{\lambda^2 - C_3}$$

the refractive indices for any wavelength within the range from the near UV to 2.3  $\mu\text{m}$  can be calculated with the help of the constants  $B_1, B_2, B_3,$  and  $C_1, C_2, C_3$ .

### Constants of the formula $dn/dT$

The temperature dependence of the refractive index can be calculated using the following formula:

$$\frac{dn_{\text{abs}}(\lambda, T)}{dT} = \frac{n^2(\lambda, T_0) - 1}{2 n(\lambda, T_0)} \left( D_0 + 2 D_1 \Delta T + 3 D_2 \Delta T^2 + \frac{E_0 + 2 E_1 \Delta T}{\lambda^2 - \lambda_{\text{TK}}^2} \right)$$

The constants are valid for a temperature range from  $-100^\circ\text{C}$  to  $+140^\circ\text{C}$  and a wavelength range from 0.365  $\mu\text{m}$  to 1.014  $\mu\text{m}$ . The temperature coefficients in the data sheets are guideline values.

### Temperature coefficient of refraction

$\Delta n_{\text{rel}} / \Delta T$  referring to air at normal pressure 1013.3 mbar

$\Delta n_{\text{abs}} / \Delta T$  referring to vacuum

### Internal transmittance $\tau_i$

The internal transmittance in the wavelength range between 250 nm and 2500 nm is listed for thickness of 10 and 25 mm. The internal transmittance and color code listed in the data sheet represent median values from several melts of one glass type. For HT and HTultra grade, the internal transmittance in the visible spectrum includes guaranteed minimum values.

### Color code

The color code lists the wavelength  $\lambda_{80}$  and  $\lambda_5$  at which the transmittance is 0.80 and 0.05 at 10 mm thickness. The values are rounded off to 10 nm and denoted by eliminating the first digit. For high index glass types with  $nd > 1.83$ , the data of the color codes (marked by \*) refers to the transmittance values 0.70 and 0.05 ( $\lambda_{70}$  and  $\lambda_5$ ).

### Relative partial dispersion

The relative partial dispersions  $P_{xy}$  and  $P'_{xy}$  for the wavelengths  $x$  and  $y$  are derived from the equations.

$$P_{xy} = \frac{n_x - n_y}{n_F - n_C} \quad \text{und} \quad P'_{xy} = \frac{n_x - n_y}{n_{F'} - n_{C'}}$$

### Deviation of the relative partial dispersion from the "normal line" $\Delta P$

The term  $\Delta P_{xy}$  quantitatively describes a deviation relation of the dispersion from the "normal glasses".

## Other characteristics

$\alpha_{-30/+70}$	= The coefficient of thermal expansion in the temperature range between $-30^{\circ}\text{C}$ und $+70^{\circ}\text{C}$ in $10^{-6}/\text{K}$
$\alpha_{20/300}$	= The coefficient of linear thermal expansion in the temperature range between $+20^{\circ}\text{C}$ und $+300^{\circ}\text{C}$ in $10^{-6}/\text{K}$
Tg	= Transformation temperature in $^{\circ}\text{C}$
$T_{10^{13.0}}$	= Temperature of the glass in $^{\circ}\text{C}$ at a viscosity of $10^{13}$ dPa·s
$T_{10^{7.6}}$	= Temperature of the glass in $^{\circ}\text{C}$ at a viscosity of $10^{7.6}$ dPa·s
$c_p$	= average specific heat capacity in $\text{J}/(\text{g}\cdot\text{K})$
$\lambda$	= Thermal conductivity in $\text{W}/(\text{m}\cdot\text{K})$
AT*	= Yield point/sag temperature in $^{\circ}\text{C}$
$\rho$	= Density in $\text{g}/\text{cm}^3$
E	= Elasticity modulus in $10^3$ N/mm <sup>2</sup>
$\mu$	= Poisson's ratio
K	= Stress optical coefficient in $10^{-6}$ mm <sup>2</sup> /N
HK	= Knoop hardness
HG	= Grindability class (ISO 12844)
Abrasion Aa*	= Grindability according to JOGIS**
CR	= Climatic resistance Resistance to moisture in the air expressed in CR classes 1 (high) to 4 (low).
FR	= Stain resistance Resistance to stain formation expressed in FR classes 0 (high) to 5 (low).
SR	= Acid resistance Resistance to acid solutions expressed in SR classes 1 (high) to 4 (low) and 51 to 53 (very low).
AR	= Alkali resistance Resistance to alkaline solutions expressed in AR classes 1 (high) to 4 (low).
PR	= Phosphate resistance Resistance to alkaline phosphate containing solutions expressed in PR classes 1 (high) to 4 (low).
SR-J*	= Acid resistance class according to JOGIS**
WR-J*	= Water resistance class according to JOGIS**

\* only precision molding glasses

\*\* JOGIS = Japanese Optical Glass Industrial Standards

## BAFN6 589485.317

$n_d = 1.58900$   
 $n_e = 1.59189$

$v_d = 48.45$   
 $v_e = 48.16$

$n_F - n_C = 0.012158$   
 $n_F - n_C' = 0.012291$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.55832
$n_{1970.1}$	1970.1	1.56349
$n_{1529.6}$	1529.6	1.56910
$n_{1060.0}$	1060.0	1.57522
$n_t$	1014.0	1.57596
$n_s$	852.1	1.57910
$n_r$	706.5	1.58332
$n_C$	656.3	1.58536
$n_{C'}$	643.8	1.58594
$n_{632.8}$	632.8	1.58647
$n_D$	589.3	1.58889
$n_d$	587.6	1.58900
$n_e$	546.1	1.59189
$n_F$	486.1	1.59752
$n_{F'}$	480.0	1.59823
$n_g$	435.8	1.60436
$n_h$	404.7	1.61017
$n_i$	365.0	1.62038
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.367192010
$B_2$	0.109079940
$B_3$	1.021080110
$C_1$	0.008828207
$C_2$	0.0438731646
$C_3$	113.58602000

### Constants of Formula for $dn/dT$

$D_0$	1.34E-06
$D_1$	1.34E-08
$D_2$	-5.50E-11
$E_0$	4.95E-07
$E_1$	3.62E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.265

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.1	2.9	3.9	0.0	0.8	1.7
+20/+40	2.3	3.2	4.3	1.0	1.8	2.8
+60/+80	2.4	3.3	4.4	1.3	2.2	3.3

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
<b>2500</b>		
2325	0.910	0.780
1970	0.976	0.940
1530	0.998	0.995
1060	0.998	0.995
700	0.999	0.997
660	0.998	0.995
620	0.998	0.994
580	0.998	0.994
546	0.996	0.991
500	0.994	0.986
460	0.990	0.975
436	0.985	0.963
420	0.981	0.954
405	0.976	0.940
400	0.971	0.930
390	0.954	0.890
380	0.920	0.810
370	0.850	0.670
365	0.790	0.560
350	0.430	0.120
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$	38/33
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### Remarks

inquiry glass, lead containing

### Relative Partial Dispersion P

$P_{s,t}$	0.2580
$P_{C,s}$	0.5152
$P_{d,C}$	0.2993
$P_{e,d}$	0.2377
$P_{g,F}$	0.5625
$P_{i,h}$	0.8405

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2552
$P'_{C,s}$	0.5565
$P'_{d,C'}$	0.2492
$P'_{e,d}$	0.2351
$P'_{g,F'}$	0.4987
$P'_{i,h}$	0.8314

### Deviation of Rel. Partial Disp.

$\Delta P$ from the normal line	
$\Delta P_{C,t}$	-0.0015
$\Delta P_{C,s}$	-0.0006
$\Delta P_{F,e}$	0.0001
$\Delta P_{g,F}$	0.0002
$\Delta P_{i,g}$	0.0002

### Chemical Properties

CR	2
FR	0
SR	2
AR	2
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.8
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.5
$T_g$ [°C]	549
$T_{10}^{13}$ [°C]	
$T_{10}^{7.6}$ [°C]	
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	
$\rho$ [g/cm <sup>3</sup> ]	3.17
$E$ [ $10^3$ N/mm <sup>2</sup> ]	77
$\mu$	0.234
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.50
$HK_{0.1/20}$	540

## FK3 464658.227

$n_d = 1.46450$   
 $n_e = 1.46619$

$v_d = 65.77$   
 $v_e = 65.57$

$n_F - n_C = 0.007063$   
 $n_{F'} - n_{C'} = 0.007110$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.43972
$n_{1970.1}$	1970.1	1.44498
$n_{1529.6}$	1529.6	1.45039
$n_{1060.0}$	1060.0	1.45557
$n_t$	1014.0	1.45612
$n_s$	852.1	1.45834
$n_r$	706.5	1.46106
$n_C$	656.3	1.46232
$n_{C'}$	643.8	1.46267
$n_{632.8}$	632.8	1.46300
$n_D$	589.3	1.46444
$n_d$	587.6	1.46450
$n_e$	546.1	1.46619
$n_F$	486.1	1.46939
$n_{F'}$	480.0	1.46978
$n_g$	435.8	1.47315
$n_h$	404.7	1.47625
$n_i$	365.0	1.48149
$n_{334.1}$	334.1	1.48708
$n_{312.6}$	312.6	1.49217
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	0.973346627
$B_2$	0.146642231
$B_3$	0.679304225
$C_1$	0.006407955
$C_2$	0.0205652930
$C_3$	80.49653890

### Constants of Formula for $dn/dT$

$D_0$	-4.90E-06
$D_1$	1.23E-08
$D_2$	-1.19E-10
$E_0$	3.45E-07
$E_1$	7.72E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.180

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	-0.7	-0.4	-0.1	-2.6	-2.4	-2.1
+20/+40	-0.4	0.0	0.3	-1.7	-1.3	-1.0
+60/+80	-0.6	-0.2	0.3	-1.6	-1.2	-0.8

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.650	0.340
2325	0.810	0.590
1970	0.971	0.930
1530	0.988	0.970
1060	0.998	0.995
700	0.997	0.993
660	0.997	0.993
620	0.997	0.993
580	0.997	0.993
546	0.997	0.993
500	0.997	0.993
460	0.996	0.990
436	0.996	0.989
420	0.995	0.987
405	0.994	0.986
400	0.994	0.985
390	0.994	0.984
380	0.992	0.980
370	0.988	0.971
365	0.985	0.964
350	0.954	0.890
334	0.890	0.740
320	0.700	0.410
310	0.510	0.190
300	0.300	0.050
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  33/30

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.3133
$P_{C,s}$	0.5644
$P_{d,C}$	0.3083
$P_{e,d}$	0.2387
$P_{g,F}$	0.5329
$P_{i,h}$	0.7419

### Relative Partial Dispersion P'

$P'_{s,t}$	0.3112
$P'_{C,s}$	0.6097
$P'_{d,C'}$	0.2571
$P'_{e,d}$	0.2371
$P'_{g,F'}$	0.4736
$P'_{i,h}$	0.7370

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0207
$\Delta P_{C,s}$	0.0082
$\Delta P_{F,e}$	-0.0008
$\Delta P_{g,F}$	-0.0003
$\Delta P_{i,g}$	0.0079

### Chemical Properties

CR	2
FR	3
SR	52.4
AR	2
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.2
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.4
$T_g$ [°C]	362
$T_{10}^{13}$ [°C]	369
$T_{10}^{7.6}$ [°C]	622
$c_p$ [J/(g·K)]	0.840
$\lambda$ [W/(m·K)]	0.900
$\rho$ [g/cm <sup>3</sup> ]	2.27
$E$ [ $10^3$ N/mm <sup>2</sup> ]	46
$\mu$	0.243
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	3.71
$HK_{0.1/20}$	380



## KZFS12 696363.384

$n_d = 1.69600$   
 $n_e = 1.70055$

$v_d = 36.29$   
 $v_e = 36.06$

$n_F - n_C = 0.019179$   
 $n_F - n_C = 0.019425$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.64970
$n_{1970.1}$	1970.1	1.65749
$n_{1529.6}$	1529.6	1.66580
$n_{1060.0}$	1060.0	1.67488
$n_t$	1014.0	1.67598
$n_s$	852.1	1.68071
$n_r$	706.5	1.68717
$n_C$	656.3	1.69033
$n_{C'}$	643.8	1.69122
$n_{632.8}$	632.8	1.69206
$n_D$	589.3	1.69583
$n_d$	587.6	1.69600
$n_e$	546.1	1.70055
$n_F$	486.1	1.70951
$n_{F'}$	480.0	1.71065
$n_g$	435.8	1.72059
$n_h$	404.7	1.73017
$n_i$	365.0	1.74746
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.556248730
$B_2$	0.239769276
$B_3$	0.947887658
$C_1$	0.010201274
$C_2$	0.0469277969
$C_3$	69.83707220

### Constants of Formula for $dn/dT$

$D_0$	4.36E-06
$D_1$	1.32E-08
$D_2$	-1.81E-11
$E_0$	6.86E-07
$E_1$	6.81E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.253

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	4.1	5.4	6.8	1.9	3.1	4.4
+20/+40	4.3	5.7	7.3	2.8	4.2	5.8
+60/+80	4.5	6.0	7.8	3.4	4.9	6.6

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.280	0.040
2325	0.620	0.300
1970	0.920	0.810
1530	0.976	0.940
1060	0.998	0.994
700	0.997	0.993
660	0.997	0.992
620	0.997	0.992
580	0.996	0.991
546	0.996	0.991
500	0.994	0.986
460	0.988	0.971
436	0.977	0.940
420	0.963	0.910
405	0.930	0.840
400	0.920	0.810
390	0.880	0.720
380	0.800	0.580
370	0.680	0.380
365	0.570	0.250
350	0.110	0.000
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$	40/35
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### Remarks

inquiry glass, lead containing
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### Relative Partial Dispersion P

$P_{s,t}$	0.2468
$P_{C,s}$	0.5013
$P_{d,C}$	0.2957
$P_{e,d}$	0.2371
$P_{g,F}$	0.5778
$P_{i,h}$	0.9012

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2436
$P'_{C,s}$	0.5409
$P'_{d,C'}$	0.2460
$P'_{e,d}$	0.2341
$P'_{g,F'}$	0.5118
$P'_{i,h}$	0.8898

### Deviation of Rel. Partial Disp.

$\Delta P$ from the normal line	
$\Delta P_{C,t}$	0.0309
$\Delta P_{C,s}$	0.0138
$\Delta P_{F,e}$	-0.0021
$\Delta P_{g,F}$	-0.0050
$\Delta P_{i,g}$	-0.0189

### Chemical Properties

CR	4
FR	1
SR	53.3
AR	4.3
PR	4.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	5.2
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.2
$T_g$ [°C]	492
$T_{10}^{13}$ [°C]	476
$T_{10}^{7.6}$ [°C]	549
$c_p$ [J/(g·K)]	0.540
$\lambda$ [W/(m·K)]	0.710
$\rho$ [g/cm <sup>3</sup> ]	3.84
$E$ [ $10^3$ N/mm <sup>2</sup> ]	66
$\mu$	0.279
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.35
$HK_{0.1/20}$	440
HG	4

## KZFSN5 654396.346

$n_d = 1.65412$   
 $n_e = 1.65803$

$v_d = 39.63$   
 $v_e = 39.40$

$n_F - n_C = 0.016507$   
 $n_{F'} - n_{C'} = 0.016701$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.61108
$n_{1970.1}$	1970.1	1.61880
$n_{1529.6}$	1529.6	1.62692
$n_{1060.0}$	1060.0	1.63548
$n_t$	1014.0	1.63649
$n_s$	852.1	1.64075
$n_r$	706.5	1.64644
$n_C$	656.3	1.64920
$n_{C'}$	643.8	1.64998
$n_{632.8}$	632.8	1.65070
$n_D$	589.3	1.65397
$n_d$	587.6	1.65412
$n_e$	546.1	1.65803
$n_F$	486.1	1.66571
$n_{F'}$	480.0	1.66668
$n_g$	435.8	1.67512
$n_h$	404.7	1.68319
$n_i$	365.0	1.69759
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.477278580
$B_2$	0.191686941
$B_3$	0.897333608
$C_1$	0.009754883
$C_2$	0.0450495404
$C_3$	67.87864950

### Constants of Formula for $dn/dT$

$D_0$	5.51E-06
$D_1$	1.48E-08
$D_2$	-2.21E-11
$E_0$	6.22E-07
$E_1$	7.05E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.230

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	4.4	5.5	6.6	2.2	3.2	4.3
+20/+40	4.7	5.9	7.1	3.3	4.4	5.6
+60/+80	4.9	6.2	7.6	3.8	5.1	6.4

### Internal Transmittance $\tau_l$

$\lambda$ [nm]	$\tau_l$ [10mm]	$\tau_l$ [25mm]
2500	0.250	0.030
2325	0.570	0.240
1970	0.900	0.770
1530	0.967	0.920
1060	0.999	0.997
700	0.998	0.996
660	0.998	0.996
620	0.998	0.996
580	0.998	0.996
546	0.998	0.995
500	0.997	0.992
460	0.994	0.985
436	0.991	0.978
420	0.987	0.968
405	0.980	0.950
400	0.976	0.940
390	0.963	0.910
380	0.940	0.850
370	0.890	0.740
365	0.840	0.650
350	0.510	0.190
334	0.130	
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  37/34

### Remarks

inquiry glass, lead containing

### Relative Partial Dispersion P

$P_{s,t}$	0.2581
$P_{C,s}$	0.5120
$P_{d,C}$	0.2978
$P_{e,d}$	0.2374
$P_{g,F}$	0.5700
$P_{i,h}$	0.8727

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2551
$P'_{C',s}$	0.5525
$P'_{d,C'}$	0.2479
$P'_{e,d}$	0.2346
$P'_{g,F'}$	0.5053
$P'_{i,h}$	0.8625

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0371
$\Delta P_{C,s}$	0.0167
$\Delta P_{F,e}$	-0.0027
$\Delta P_{g,F}$	-0.0071
$\Delta P_{i,g}$	-0.0302

### Chemical Properties

CR	3
FR	2
SR	52.3
AR	4.3
PR	4.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	4.5
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	5.7
$T_g$ [°C]	501
$T_{10}^{13}$ [°C]	479
$T_{10}^{7.6}$ [°C]	
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	
$\rho$ [g/cm <sup>3</sup> ]	3.46
$E$ [ $10^3$ N/mm <sup>2</sup> ]	65
$\mu$	0.275
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.89
$HK_{0.1/20}$	460
HG	5



## LAFN7 750350.438

$n_d = 1.74950$

$v_d = 34.95$

$n_F - n_C = 0.021445$

$n_e = 1.75458$

$v_e = 34.72$

$n_{F'} - n_{C'} = 0.021735$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.70211
$n_{1970.1}$	1970.1	1.70934
$n_{1529.6}$	1529.6	1.71726
$n_{1060.0}$	1060.0	1.72642
$n_t$	1014.0	1.72758
$n_s$	852.1	1.73264
$n_r$	706.5	1.73970
$n_C$	656.3	1.74319
$n_{C'}$	643.8	1.74418
$n_{632.8}$	632.8	1.74511
$n_D$	589.3	1.74931
$n_d$	587.6	1.74950
$n_e$	546.1	1.75458
$n_F$	486.1	1.76464
$n_{F'}$	480.0	1.76592
$n_g$	435.8	1.77713
$n_h$	404.7	1.78798
$n_i$	365.0	1.80762
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.668426150
$B_2$	0.298512803
$B_3$	1.077437600
$C_1$	0.010316000
$C_2$	0.0469216348
$C_3$	82.50785090

### Constants of Formula for $dn/dT$

$D_0$	7.27E-06
$D_1$	1.31E-08
$D_2$	-3.32E-11
$E_0$	8.88E-07
$E_1$	9.32E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.248

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	6.0	7.8	9.7	3.7	5.4	7.2
+20/+40	6.3	8.3	10.4	4.8	6.7	8.9
+60/+80	6.5	8.6	10.9	5.3	7.4	9.7

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.380	0.090
2325	0.700	0.410
1970	0.940	0.850
1530	0.984	0.960
1060	0.998	0.996
700	0.998	0.996
660	0.998	0.995
620	0.998	0.995
580	0.998	0.995
546	0.998	0.994
500	0.998	0.994
460	0.993	0.982
436	0.986	0.965
420	0.976	0.940
405	0.950	0.880
400	0.940	0.850
390	0.910	0.780
380	0.840	0.650
370	0.690	0.400
365	0.550	0.220
350	0.130	0.010
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  40/35

### Remarks

lead containing glass type

### Relative Partial Dispersion P

$P_{s,t}$	0.2360
$P_{C,s}$	0.4921
$P_{d,C}$	0.2941
$P_{e,d}$	0.2369
$P_{g,F}$	0.5825
$P_{i,h}$	0.9160

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2329
$P'_{C,s}$	0.5311
$P'_{d,C'}$	0.2446
$P'_{e,d}$	0.2338
$P'_{g,F'}$	0.5158
$P'_{i,h}$	0.9037

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0174
$\Delta P_{C,s}$	0.0078
$\Delta P_{F,e}$	-0.0011
$\Delta P_{g,F}$	-0.0025
$\Delta P_{i,g}$	-0.0093

### Chemical Properties

CR	3
FR	1
SR	53.3
AR	2.2
PR	4.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	5.3
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.4
$T_g$ [°C]	500
$T_{10}^{13}$ [°C]	481
$T_{10}^{7.6}$ [°C]	573
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	0.770
$\rho$ [g/cm <sup>3</sup> ]	4.38
$E$ [ $10^3$ N/mm <sup>2</sup> ]	80
$\mu$	0.280
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	1.77
$HK_{0.1/20}$	520
HG	3

## LF5G15 584408.322

$n_d = 1.58397$   
 $n_e = 1.58736$

$v_d = 40.83$   
 $v_e = 40.55$

$n_F - n_C = 0.014301$   
 $n_F - n_C = 0.014484$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.55252
$n_{1970.1}$	1970.1	1.55707
$n_{1529.6}$	1529.6	1.56225
$n_{1060.0}$	1060.0	1.56842
$n_t$	1014.0	1.56920
$n_s$	852.1	1.57263
$n_r$	706.5	1.57739
$n_C$	656.3	1.57974
$n_{C'}$	643.8	1.58041
$n_{632.8}$	632.8	1.58103
$n_D$	589.3	1.58384
$n_d$	587.6	1.58397
$n_e$	546.1	1.58736
$n_F$	486.1	1.59404
$n_{F'}$	480.0	1.59489
$n_g$	435.8	1.60228
$n_h$	404.7	
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.288873310
$B_2$	0.162818811
$B_3$	10.557979200
$C_1$	0.009200157
$C_2$	0.0456954308
$C_3$	1275.44015000

### Constants of Formula for $dn/dT$

$D_0$	
$D_1$	
$D_2$	
$E_0$	
$E_1$	
$\lambda_{TK}$ [ $\mu\text{m}$ ]	

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{re}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20						
+20/+40						
+60/+80						

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.690	0.400
2325	0.770	0.520
1970	0.910	0.800
1530	0.994	0.985
1060	0.999	0.998
700	0.997	0.992
660	0.996	0.989
620	0.995	0.987
580	0.993	0.984
546	0.991	0.979
500	0.985	0.963
460	0.966	0.920
436	0.920	0.810
420	0.830	0.630
405	0.660	0.350
400	0.570	0.240
390	0.350	0.070
380	0.130	0.000
370	0.020	
365	0.000	
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$	43/37
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### Remarks

radiation resistant glass
lead containing glass type
inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2397
$P_{C,s}$	0.4975
$P_{d,C}$	0.2957
$P_{e,d}$	0.2372
$P_{g,F}$	0.5759
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2367
$P'_{C,s}$	0.5372
$P'_{d,C'}$	0.2460
$P'_{e,d}$	0.2342
$P'_{g,F'}$	0.5101
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

$\Delta P$ from the normal line	
$\Delta P_{C,t}$	-0.0015
$\Delta P_{C,s}$	-0.0006
$\Delta P_{F,e}$	0.0002
$\Delta P_{g,F}$	0.0008
$\Delta P_{i,g}$	

### Chemical Properties

CR	2
FR	0
SR	1
AR	1.3
PR	2.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.3
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	10.7
$T_g$ [°C]	407
$T_{10}^{13}$ [°C]	412
$T_{10}^{7.6}$ [°C]	578
$c_p$ [J/(g·K)]	0.600
$\lambda$ [W/(m·K)]	0.860
$\rho$ [g/cm <sup>3</sup> ]	3.22
$E$ [ $10^3$ N/mm <sup>2</sup> ]	60
$\mu$	0.228
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.77
$HK_{0.1/20}$	446

## N-BAF3 583466.279

$n_d = 1.58272$   
 $n_e = 1.58569$

$v_d = 46.64$   
 $v_e = 46.35$

$n_F - n_C = 0.012495$   
 $n_{F'} - n_{C'} = 0.012637$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.54998
$n_{1970.1}$	1970.1	1.55574
$n_{1529.6}$	1529.6	1.56192
$n_{1060.0}$	1060.0	1.56850
$n_t$	1014.0	1.56927
$n_s$	852.1	1.57254
$n_r$	706.5	1.57689
$n_C$	656.3	1.57899
$n_{C'}$	643.8	1.57958
$n_{632.8}$	632.8	1.58013
$n_D$	589.3	1.58261
$n_d$	587.6	1.58272
$n_e$	546.1	1.58569
$n_F$	486.1	1.59149
$n_{F'}$	480.0	1.59222
$n_g$	435.8	1.59857
$n_h$	404.7	1.60463
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.348596340
$B_2$	0.107644240
$B_3$	1.132070840
$C_1$	0.008714929
$C_2$	0.0478406436
$C_3$	112.93611600

### Constants of Formula for $dn/dT$

$D_0$	1.40E-06
$D_1$	1.24E-08
$D_2$	-9.39E-12
$E_0$	5.91E-07
$E_1$	7.44E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.235

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.4	3.2	4.1	0.3	1.1	1.9
+20/+40	2.4	3.4	4.4	1.0	2.0	3.0
+60/+80	2.5	3.6	4.8	1.5	2.5	3.7

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.730	0.460
2325	0.850	0.660
1970	0.954	0.890
1530	0.992	0.980
1060	0.997	0.993
700	0.998	0.994
660	0.997	0.992
620	0.996	0.991
580	0.997	0.993
546	0.996	0.991
500	0.994	0.985
460	0.990	0.975
436	0.986	0.965
420	0.981	0.952
405	0.967	0.920
400	0.959	0.900
390	0.920	0.820
380	0.850	0.670
370	0.690	0.400
365	0.570	0.240
350	0.060	
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  39/35

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2616
$P_{C,s}$	0.5160
$P_{d,C}$	0.2987
$P_{e,d}$	0.2375
$P_{g,F}$	0.5669
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2587
$P'_{C,s}$	0.5569
$P'_{d,C'}$	0.2487
$P'_{e,d}$	0.2348
$P'_{g,F'}$	0.5026
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0114
$\Delta P_{C,s}$	0.0044
$\Delta P_{F,e}$	-0.0001
$\Delta P_{g,F}$	0.0015
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1
AR	1
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.2
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.2
$T_g$ [°C]	583
$T_{10}^{13}$ [°C]	573
$T_{10}^{7.6}$ [°C]	714
$c_p$ [J/(g·K)]	0.760
$\lambda$ [W/(m·K)]	1.040
$\rho$ [g/cm <sup>3</sup> ]	2.79
$E$ [ $10^3$ N/mm <sup>2</sup> ]	82
$\mu$	0.226
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.73
$HK_{0.1/20}$	560
HG	2

## N-LAF3 717480.414

$n_d = 1.71700$   
 $n_e = 1.72055$

$v_d = 47.96$   
 $v_e = 47.68$

$n_F - n_C = 0.014950$   
 $n_{F'} - n_{C'} = 0.015112$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.68061
$n_{1970.1}$	1970.1	1.68653
$n_{1529.6}$	1529.6	1.69297
$n_{1060.0}$	1060.0	1.70017
$n_t$	1014.0	1.70105
$n_s$	852.1	1.70485
$n_r$	706.5	1.71001
$n_C$	656.3	1.71252
$n_{C'}$	643.8	1.71323
$n_{632.8}$	632.8	1.71389
$n_D$	589.3	1.71687
$n_d$	587.6	1.71700
$n_e$	546.1	1.72055
$n_F$	486.1	1.72747
$n_{F'}$	480.0	1.72834
$n_g$	435.8	1.73585
$n_h$	404.7	1.74293
$n_i$	365.0	1.75530
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.731558540
$B_2$	0.150874455
$B_3$	1.065865960
$C_1$	0.009538339
$C_2$	0.0407887211
$C_3$	98.07585450

### Constants of Formula for $dn/dT$

$D_0$	-2.35E-06
$D_1$	1.07E-08
$D_2$	-9.38E-12
$E_0$	5.72E-07
$E_1$	6.01E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.220

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	0.6	1.5	2.5	-1.7	-0.8	0.1
+20/+40	0.6	1.6	2.7	-0.9	0.1	1.2
+60/+80	0.7	1.8	3.0	-0.4	0.7	1.8

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.630	0.310
2325	0.800	0.580
1970	0.950	0.880
1530	0.992	0.980
1060	0.997	0.993
700	0.997	0.993
660	0.997	0.993
620	0.997	0.993
580	0.997	0.993
546	0.997	0.993
500	0.994	0.985
460	0.987	0.968
436	0.982	0.955
420	0.976	0.940
405	0.963	0.910
400	0.954	0.890
390	0.930	0.830
380	0.880	0.720
370	0.780	0.540
365	0.710	0.420
350	0.310	0.060
334	0.010	
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  39/34

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2538
$P_{C,s}$	0.5132
$P_{d,C}$	0.2994
$P_{e,d}$	0.2379
$P_{g,F}$	0.5603
$P_{i,h}$	0.8274

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2511
$P'_{C,s}$	0.5545
$P'_{d,C'}$	0.2494
$P'_{e,d}$	0.2353
$P'_{g,F'}$	0.4967
$P'_{i,h}$	0.8185

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0054
$\Delta P_{C,s}$	-0.0015
$\Delta P_{F,e}$	-0.0005
$\Delta P_{g,F}$	-0.0028
$\Delta P_{i,g}$	-0.0210

### Chemical Properties

CR	2
FR	3
SR	52.3
AR	1.2
PR	3.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.6
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.7
$T_g$ [°C]	646
$T_{10}^{13}$ [°C]	640
$T_{10}^{7.6}$ [°C]	740
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	
$\rho$ [g/cm <sup>3</sup> ]	4.14
$E$ [ $10^3$ N/mm <sup>2</sup> ]	95
$\mu$	0.286
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	1.53
$HK_{0.1/20}$	580
HG	5

## N-LAF35 743494.412

$n_d = 1.74330$

$v_d = 49.40$

$n_F - n_C = 0.015047$

$n_e = 1.74688$

$v_e = 49.16$

$n_F - n_C = 0.015194$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	
$n_{1970.1}$	1970.1	
$n_{1529.6}$	1529.6	
$n_{1060.0}$	1060.0	1.72588
$n_t$	1014.0	1.72683
$n_s$	852.1	1.73086
$n_r$	706.5	1.73620
$n_C$	656.3	1.73876
$n_{C'}$	643.8	1.73948
$n_{632.8}$	632.8	1.74015
$n_D$	589.3	1.74317
$n_d$	587.6	1.74330
$n_e$	546.1	1.74688
$n_F$	486.1	1.75381
$n_{F'}$	480.0	1.75467
$n_g$	435.8	1.76212
$n_h$	404.7	1.76908
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.516974360
$B_2$	0.455875464
$B_3$	1.074692420
$C_1$	0.007509432
$C_2$	0.0260046715
$C_3$	80.59451590

### Constants of Formula for $dn/dT$

$D_0$	8.98E-06
$D_1$	1.26E-08
$D_2$	-1.23E-11
$E_0$	6.24E-07
$E_1$	6.86E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.194

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	7.0	8.1	9.2	4.7	5.7	6.7
+20/+40	7.1	8.4	9.6	5.6	6.9	8.0
+60/+80	7.3	8.7	10.0	6.2	7.5	8.8

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.400	0.100
2325	0.710	0.430
1970	0.940	0.850
1530	0.988	0.970
1060	0.998	0.995
700	0.998	0.996
660	0.998	0.996
620	0.998	0.994
580	0.998	0.994
546	0.998	0.995
500	0.997	0.992
460	0.994	0.985
436	0.990	0.976
420	0.987	0.967
405	0.980	0.950
400	0.976	0.940
390	0.966	0.920
380	0.950	0.880
370	0.920	0.810
365	0.900	0.760
350	0.790	0.550
334	0.590	0.270
320	0.350	0.200
310	0.150	0.080
300	0.030	
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_{5}$  38/30

### Remarks

### Relative Partial Dispersion P

$P_{s,t}$	0.2674
$P_{C,s}$	0.5253
$P_{d,C}$	0.3017
$P_{e,d}$	0.2381
$P_{g,F}$	0.5523
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2648
$P'_{C,s}$	0.5676
$P'_{d,C'}$	0.2514
$P'_{e,d}$	0.2358
$P'_{g,F'}$	0.4899
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0134
$\Delta P_{C,s}$	0.0072
$\Delta P_{F,e}$	-0.0022
$\Delta P_{g,F}$	-0.0084
$\Delta P_{i,g}$	

### Chemical Properties

CR	2
FR	1
SR	52.3
AR	1
PR	3.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	5.3
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.4
$T_g$ [°C]	589
$T_{10}^{13}$ [°C]	585
$T_{10}^{7.6}$ [°C]	669
$c_p$ [J/(g·K)]	0.570
$\lambda$ [W/(m·K)]	0.800
$\rho$ [g/cm <sup>3</sup> ]	4.12
$E$ [ $10^3$ N/mm <sup>2</sup> ]	109
$\mu$	0.301
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.29
$HK_{0.1/20}$	660
HG	2

## N-LAF36 800424.443

$n_d = 1.79952$   
 $n_e = 1.80400$

$v_d = 42.37$   
 $v_e = 42.12$

$n_F - n_C = 0.018871$   
 $n_{F'} - n_{C'} = 0.019090$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.75555
$n_{1970.1}$	1970.1	1.76246
$n_{1529.6}$	1529.6	1.77001
$n_{1060.0}$	1060.0	1.77862
$n_t$	1014.0	1.77969
$n_s$	852.1	1.78435
$n_r$	706.5	1.79076
$n_C$	656.3	1.79390
$n_{C'}$	643.8	1.79478
$n_{632.8}$	632.8	1.79561
$n_D$	589.3	1.79935
$n_d$	587.6	1.79952
$n_e$	546.1	1.80400
$n_F$	486.1	1.81277
$n_{F'}$	480.0	1.81387
$n_g$	435.8	1.82345
$n_h$	404.7	1.83252
$n_i$	365.0	1.84848
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.857442280
$B_2$	0.294098729
$B_3$	1.166154170
$C_1$	0.009823972
$C_2$	0.0384309138
$C_3$	89.39846340

### Constants of Formula for $dn/dT$

$D_0$	8.72E-06
$D_1$	1.12E-08
$D_2$	-1.38E-11
$E_0$	7.81E-07
$E_1$	9.48E-10
$\lambda_{TK}$ [μm]	0.212

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	7.3	8.8	10.3	4.9	6.4	7.8
+20/+40	7.4	9.1	10.8	5.9	7.6	9.2
+60/+80	7.6	9.5	11.3	6.4	8.2	10.1

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.480	0.160
2325	0.770	0.520
1970	0.950	0.880
1530	0.992	0.980
1060	0.998	0.994
700	0.998	0.994
660	0.998	0.994
620	0.997	0.992
580	0.997	0.992
546	0.996	0.990
500	0.992	0.980
460	0.985	0.962
436	0.976	0.940
420	0.967	0.920
405	0.954	0.890
400	0.950	0.870
390	0.920	0.810
380	0.870	0.710
370	0.790	0.560
365	0.730	0.460
350	0.460	0.140
334	0.070	
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  40/33

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2467
$P_{C,s}$	0.5059
$P_{d,C}$	0.2979
$P_{e,d}$	0.2377
$P_{g,F}$	0.5659
$P_{i,h}$	0.8455

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2439
$P'_{C',s}$	0.5465
$P'_{d,C'}$	0.2480
$P'_{e,d}$	0.2349
$P'_{g,F'}$	0.5014
$P'_{i,h}$	0.8358

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0067
$\Delta P_{C,s}$	0.0043
$\Delta P_{F,e}$	-0.0016
$\Delta P_{g,F}$	-0.0067
$\Delta P_{i,g}$	-0.0424

### Chemical Properties

CR	1
FR	2
SR	52.3
AR	1
PR	3.3

### Other Properties

$\alpha_{-30/+70^\circ C}$ [ $10^{-6}/K$ ]	5.7
$\alpha_{+20/+300^\circ C}$ [ $10^{-6}/K$ ]	6.8
$T_g$ [°C]	579
$T_{10}^{13}$ [°C]	582
$T_{10}^{7.6}$ [°C]	670
$c_p$ [J/(g·K)]	0.540
$\lambda$ [W/(m·K)]	0.790
$\rho$ [g/cm <sup>3</sup> ]	4.43
$E$ [ $10^3$ N/mm <sup>2</sup> ]	110
$\mu$	0.305
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.25
$HK_{0.1/20}$	680
HG	1

## N-LAK33A 754523.422

$n_d = 1.75393$   
 $n_e = 1.75737$

$v_d = 52.27$   
 $v_e = 52.04$

$n_F - n_C = 0.014424$   
 $n_{F'} - n_{C'} = 0.014554$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.71278
$n_{1970.1}$	1970.1	1.72047
$n_{1529.6}$	1529.6	1.72855
$n_{1060.0}$	1060.0	1.73690
$n_t$	1014.0	1.73786
$n_s$	852.1	1.74186
$n_r$	706.5	1.74707
$n_C$	656.3	1.74956
$n_{C'}$	643.8	1.75025
$n_{632.8}$	632.8	1.75090
$n_D$	589.3	1.75380
$n_d$	587.6	1.75393
$n_e$	546.1	1.75737
$n_F$	486.1	1.76398
$n_{F'}$	480.0	1.76481
$n_g$	435.8	1.77187
$n_h$	404.7	1.77845
$n_i$	365.0	1.78972
$n_{334.1}$	334.1	1.80195
$n_{312.6}$	312.6	1.81325
$n_{296.7}$	296.7	1.82361
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.441169990
$B_2$	0.571749501
$B_3$	1.166052260
$C_1$	0.006809339
$C_2$	0.0222291824
$C_3$	80.93795550

### Constants of Formula for $dn/dT$

$D_0$	2.63E-06
$D_1$	1.11E-08
$D_2$	-3.92E-12
$E_0$	5.02E-07
$E_1$	5.08E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.188

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	3.4	4.3	5.1	1.1	1.9	2.7
+20/+40	3.4	4.4	5.3	1.9	2.9	3.7
+60/+80	3.6	4.7	5.6	2.4	3.5	4.4

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.400	0.100
2325	0.690	0.390
1970	0.940	0.850
1530	0.990	0.975
1060	0.998	0.995
700	0.998	0.996
660	0.998	0.995
620	0.998	0.994
580	0.998	0.995
546	0.998	0.996
500	0.998	0.994
460	0.994	0.986
436	0.991	0.978
420	0.988	0.970
405	0.981	0.953
400	0.976	0.940
390	0.967	0.920
380	0.950	0.880
370	0.920	0.820
365	0.910	0.780
350	0.800	0.580
334	0.600	0.280
320	0.340	0.060
310	0.160	
300	0.050	
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  38/30

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2770
$P_{C,s}$	0.5338
$P_{d,C}$	0.3032
$P_{e,d}$	0.2383
$P_{g,F}$	0.5473
$P_{i,h}$	0.7814

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2746
$P'_{C,s}$	0.5769
$P'_{d,C'}$	0.2527
$P'_{e,d}$	0.2362
$P'_{g,F'}$	0.4857
$P'_{i,h}$	0.7744

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0180
$\Delta P_{C,s}$	0.0091
$\Delta P_{F,e}$	-0.0024
$\Delta P_{g,F}$	-0.0086
$\Delta P_{i,g}$	-0.0484

### Chemical Properties

CR	1
FR	1
SR	51
AR	1
PR	2

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	5.8
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.0
$T_g$ [°C]	669
$T_{10}^{13}$ [°C]	667
$T_{10}^{7.6}$ [°C]	744
$c_p$ [J/(g·K)]	0.550
$\lambda$ [W/(m·K)]	0.810
$\rho$ [g/cm <sup>3</sup> ]	4.22
$E$ [ $10^3$ N/mm <sup>2</sup> ]	121
$\mu$	0.292
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	1.49
$HK_{0.1/20}$	740
HG	2



## N-PSK53 620635.360

$n_d = 1.62014$   
 $n_e = 1.62247$

$v_d = 63.48$   
 $v_e = 63.19$

$n_F - n_C = 0.009769$   
 $n_{F'} - n_{C'} = 0.009851$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.59216
$n_{1970.1}$	1970.1	1.59732
$n_{1529.6}$	1529.6	1.60280
$n_{1060.0}$	1060.0	1.60851
$n_t$	1014.0	1.60917
$n_s$	852.1	1.61191
$n_r$	706.5	1.61547
$n_C$	656.3	1.61717
$n_{C'}$	643.8	1.61764
$n_{632.8}$	632.8	1.61808
$n_D$	589.3	1.62005
$n_d$	587.6	1.62014
$n_e$	546.1	1.62247
$n_F$	486.1	1.62694
$n_{F'}$	480.0	1.62749
$n_g$	435.8	1.63223
$n_h$	404.7	1.63662
$n_i$	365.0	1.64409
$n_{334.1}$	334.1	1.65211
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.343408700
$B_2$	0.241417935
$B_3$	0.952896897
$C_1$	0.006750743
$C_2$	0.0219910513
$C_3$	103.55145700

### Constants of Formula for $dn/dT$

$D_0$	-9.29E-06
$D_1$	5.78E-09
$D_2$	8.87E-13
$E_0$	4.59E-07
$E_1$	5.86E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.155

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	-2.5	-2.0	-1.5	-4.7	-4.2	-3.8
+20/+40	-2.9	-2.3	-1.8	-4.3	-3.8	-3.2
+60/+80	-3.0	-2.3	-1.7	-4.1	-3.4	-2.8

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.610	0.290
2325	0.760	0.510
1970	0.920	0.800
1530	0.982	0.956
1060	0.998	0.994
700	0.998	0.994
660	0.997	0.993
620	0.997	0.992
580	0.998	0.994
546	0.998	0.995
500	0.997	0.992
460	0.994	0.986
436	0.993	0.982
420	0.992	0.979
405	0.988	0.970
400	0.985	0.964
390	0.976	0.940
380	0.959	0.900
370	0.930	0.830
365	0.910	0.780
350	0.780	0.530
334	0.530	0.200
320	0.230	0.030
310	0.060	0.000
300	0.000	
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  36/31

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2803
$P_{C,s}$	0.5384
$P_{d,C}$	0.3045
$P_{e,d}$	0.2385
$P_{g,F}$	0.5423
$P_{i,h}$	0.7641

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2779
$P'_{C',s}$	0.5820
$P'_{d,C'}$	0.2538
$P'_{e,d}$	0.2365
$P'_{g,F'}$	0.4814
$P'_{i,h}$	0.7577

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0274
$\Delta P_{C,s}$	-0.0125
$\Delta P_{F,e}$	0.0020
$\Delta P_{g,F}$	0.0053
$\Delta P_{i,g}$	0.0214

### Chemical Properties

CR	2
FR	1
SR	52.3
AR	1.2
PR	4.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.4
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	10.9
$T_g$ [°C]	618
$T_{10}^{13}$ [°C]	606
$T_{10}^{7.6}$ [°C]	709
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	
$\rho$ [g/cm <sup>3</sup> ]	3.60
$E$ [ $10^3$ N/mm <sup>2</sup> ]	78
$\mu$	0.288
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	1.16
$HK_{0.1/20}$	440
HG	6

## N-SF19 667331.290

$n_d = 1.66679$   
 $n_e = 1.67154$

$v_d = 33.12$   
 $v_e = 32.86$

$n_F - n_C = 0.020131$   
 $n_F - n_C' = 0.020435$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.62384
$n_{1970.1}$	1970.1	1.63018
$n_{1529.6}$	1529.6	1.63723
$n_{1060.0}$	1060.0	1.64552
$n_t$	1014.0	1.64657
$n_s$	852.1	1.65120
$n_r$	706.5	1.65769
$n_C$	656.3	1.66092
$n_{C'}$	643.8	1.66184
$n_{632.8}$	632.8	1.66271
$n_D$	589.3	1.66661
$n_d$	587.6	1.66679
$n_e$	546.1	1.67154
$n_F$	486.1	1.68106
$n_{F'}$	480.0	1.68228
$n_g$	435.8	1.69309
$n_h$	404.7	1.70377
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.520054440
$B_2$	0.175739470
$B_3$	1.436234240
$C_1$	0.010961440
$C_2$	0.0593248486
$C_3$	126.79515100

### Constants of Formula for $dn/dT$

$D_0$	1.32E-06
$D_1$	1.22E-08
$D_2$	-1.36E-11
$E_0$	7.64E-07
$E_1$	1.09E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.279

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.5	3.9	5.5	0.3	1.6	3.2
+20/+40	2.6	4.2	6.2	1.2	2.7	4.7
+60/+80	2.8	4.6	6.8	1.7	3.4	5.6

### Internal Transmittance $\tau_l$

$\lambda$ [nm]	$\tau_l$ [10mm]	$\tau_l$ [25mm]
2500	0.720	0.440
2325	0.830	0.620
1970	0.954	0.890
1530	0.988	0.970
1060	0.996	0.989
700	0.994	0.985
660	0.992	0.980
620	0.991	0.978
580	0.992	0.980
546	0.991	0.977
500	0.984	0.960
460	0.974	0.940
436	0.965	0.920
420	0.950	0.880
405	0.920	0.810
400	0.900	0.770
390	0.830	0.620
380	0.640	0.330
370	0.300	0.050
365	0.130	
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  40/36

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2299
$P_{C,s}$	0.4831
$P_{d,C}$	0.2913
$P_{e,d}$	0.2362
$P_{g,F}$	0.5976
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2265
$P'_{C,s}$	0.5208
$P'_{d,C'}$	0.2421
$P'_{e,d}$	0.2327
$P'_{g,F'}$	0.5289
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0109
$\Delta P_{C,s}$	0.0030
$\Delta P_{F,e}$	0.0015
$\Delta P_{g,F}$	0.0095
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1
AR	1.2
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.2
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.3
$T_g$ [°C]	598
$T_{10}^{13}$ [°C]	585
$T_{10}^{7.6}$ [°C]	707
$c_p$ [J/(g·K)]	0.750
$\lambda$ [W/(m·K)]	1.020
$\rho$ [g/cm <sup>3</sup> ]	2.90
$E$ [ $10^3$ N/mm <sup>2</sup> ]	88
$\mu$	0.231
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.93
$HK_{0.1/20}$	630
HG	3

## N-SF56 785261.328

$n_d = 1.78470$   
 $n_e = 1.79179$

$v_d = 26.10$   
 $v_e = 25.89$

$n_F - n_C = 0.030071$   
 $n_{F'} - n_{C'} = 0.030587$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.73010
$n_{1970.1}$	1970.1	1.73664
$n_{1529.6}$	1529.6	1.74431
$n_{1060.0}$	1060.0	1.75442
$n_t$	1014.0	1.75581
$n_s$	852.1	1.76213
$n_r$	706.5	1.77137
$n_C$	656.3	1.77607
$n_{C'}$	643.8	1.77741
$n_{632.8}$	632.8	1.77868
$n_D$	589.3	1.78444
$n_d$	587.6	1.78470
$n_e$	546.1	1.79179
$n_F$	486.1	1.80614
$n_{F'}$	480.0	1.80800
$n_g$	435.8	1.82460
$n_h$	404.7	1.84126
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.735620850
$B_2$	0.317487012
$B_3$	1.953982030
$C_1$	0.012962474
$C_2$	0.0612884288
$C_3$	161.55944100

### Constants of Formula for $dn/dT$

$D_0$	-4.13E-06
$D_1$	7.65E-09
$D_2$	-1.12E-11
$E_0$	9.90E-07
$E_1$	1.57E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.287

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	-0.1	1.7	4.3	-2.5	-0.7	1.8
+20/+40	-0.3	2.0	5.1	-1.8	0.5	3.5
+60/+80	-0.2	2.4	5.9	-1.4	1.2	4.6

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.810	0.590
2325	0.860	0.680
1970	0.959	0.900
1530	0.992	0.981
1060	0.998	0.996
700	0.994	0.986
660	0.992	0.981
620	0.992	0.981
580	0.993	0.983
546	0.990	0.976
500	0.980	0.950
460	0.963	0.910
436	0.940	0.860
420	0.910	0.780
405	0.840	0.640
400	0.800	0.570
390	0.670	0.370
380	0.440	0.130
370	0.110	
365	0.020	
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  44/37

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2101
$P_{C,s}$	0.4635
$P_{d,C}$	0.2872
$P_{e,d}$	0.2356
$P_{g,F}$	0.6139
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2065
$P'_{C,s}$	0.4996
$P'_{d,C'}$	0.2384
$P'_{e,d}$	0.2316
$P'_{g,F'}$	0.5427
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0048
$\Delta P_{C,s}$	-0.0002
$\Delta P_{F,e}$	0.0026
$\Delta P_{g,F}$	0.0140
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1
AR	1.3
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.7
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	10.0
$T_g$ [°C]	592
$T_{10}^{13}$ [°C]	585
$T_{10}^{7.6}$ [°C]	691
$c_p$ [J/(g·K)]	0.700
$\lambda$ [W/(m·K)]	0.940
$\rho$ [g/cm <sup>3</sup> ]	3.28
$E$ [ $10^3$ N/mm <sup>2</sup> ]	91
$\mu$	0.255
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.87
$HK_{0.1/20}$	560
HG	5

## N-SF64 706302.299

$n_d = 1.70591$   
 $n_e = 1.71142$

$v_d = 30.23$   
 $v_e = 29.99$

$n_F - n_C = 0.023350$   
 $n_F - n_C' = 0.023720$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.65993
$n_{1970.1}$	1970.1	1.66607
$n_{1529.6}$	1529.6	1.67306
$n_{1060.0}$	1060.0	1.68176
$n_t$	1014.0	1.68291
$n_s$	852.1	1.68806
$n_r$	706.5	1.69544
$n_C$	656.3	1.69914
$n_{C'}$	643.8	1.70020
$n_{632.8}$	632.8	1.70119
$n_D$	589.3	1.70571
$n_d$	587.6	1.70591
$n_e$	546.1	1.71142
$n_F$	486.1	1.72249
$n_{F'}$	480.0	1.72392
$n_g$	435.8	1.73657
$n_h$	404.7	1.74912
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.591637620
$B_2$	0.219908428
$B_3$	1.469293150
$C_1$	0.011862343
$C_2$	0.0594585499
$C_3$	133.31076200

### Constants of Formula for $dn/dT$

$D_0$	-2.06E-06
$D_1$	9.78E-09
$D_2$	-1.67E-11
$E_0$	8.67E-07
$E_1$	1.23E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.279

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	0.9	2.4	4.4	-1.3	0.1	2.0
+20/+40	0.9	2.7	5.1	-0.6	1.2	3.5
+60/+80	1.0	3.0	5.6	-0.1	1.9	4.4

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.770	0.520
2325	0.840	0.640
1970	0.950	0.880
1530	0.992	0.979
1060	0.998	0.996
700	0.994	0.985
660	0.992	0.980
620	0.992	0.981
580	0.994	0.984
546	0.993	0.982
500	0.984	0.961
460	0.971	0.930
436	0.957	0.900
420	0.930	0.840
405	0.880	0.730
400	0.850	0.670
390	0.750	0.480
380	0.550	0.220
370	0.210	0.020
365	0.080	
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  42/37

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2204
$P_{C,s}$	0.4746
$P_{d,C}$	0.2898
$P_{e,d}$	0.2361
$P_{g,F}$	0.6028
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2169
$P'_{C,s}$	0.5117
$P'_{d,C'}$	0.2407
$P'_{e,d}$	0.2324
$P'_{g,F'}$	0.5333
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0066
$\Delta P_{C,s}$	0.0012
$\Delta P_{F,e}$	0.0017
$\Delta P_{g,F}$	0.0099
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1
AR	1.2
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.5
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.8
$T_g$ [°C]	572
$T_{10}^{13}$ [°C]	577
$T_{10}^{7.6}$ [°C]	685
$c_p$ [J/(g·K)]	0.750
$\lambda$ [W/(m·K)]	0.980
$\rho$ [g/cm <sup>3</sup> ]	2.99
$E$ [ $10^3$ N/mm <sup>2</sup> ]	88
$\mu$	0.245
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.95
$HK_{0.1/20}$	620
HG	4

## N-SK10 623570.364

$n_d = 1.62278$   
 $n_e = 1.62539$

$v_d = 56.98$   
 $v_e = 56.70$

$n_F - n_C = 0.010929$   
 $n_{F'} - n_{C'} = 0.011029$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.59310
$n_{1970.1}$	1970.1	1.59837
$n_{1529.6}$	1529.6	1.60400
$n_{1060.0}$	1060.0	1.61000
$n_t$	1014.0	1.61071
$n_s$	852.1	1.61367
$n_r$	706.5	1.61759
$n_C$	656.3	1.61947
$n_{C'}$	643.8	1.62000
$n_{632.8}$	632.8	1.62049
$n_D$	589.3	1.62268
$n_d$	587.6	1.62278
$n_e$	546.1	1.62539
$n_F$	486.1	1.63040
$n_{F'}$	480.0	1.63102
$n_g$	435.8	1.63638
$n_h$	404.7	1.64137
$n_i$	365.0	1.64989
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.349720930
$B_2$	0.238587973
$B_3$	0.966733600
$C_1$	0.007362723
$C_2$	0.0253765327
$C_3$	103.50290900

### Constants of Formula for $dn/dT$

$D_0$	5.05E-07
$D_1$	1.16E-08
$D_2$	-1.53E-11
$E_0$	4.90E-07
$E_1$	5.10E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.183

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.0	2.7	3.3	-0.2	0.4	1.0
+20/+40	2.0	2.7	3.5	0.6	1.3	2.0
+60/+80	2.1	2.9	3.7	1.0	1.8	2.6

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.730	0.460
2325	0.850	0.670
1970	0.967	0.920
1530	0.992	0.980
1060	0.998	0.994
700	0.998	0.995
660	0.997	0.993
620	0.998	0.994
580	0.998	0.996
546	0.998	0.996
500	0.998	0.995
460	0.996	0.990
436	0.995	0.987
420	0.994	0.985
405	0.990	0.975
400	0.988	0.970
390	0.980	0.950
380	0.963	0.910
370	0.930	0.840
365	0.910	0.790
350	0.770	0.520
334	0.410	0.110
320	0.070	
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  36/32

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2714
$P_{C,s}$	0.5302
$P_{d,C}$	0.3029
$P_{e,d}$	0.2384
$P_{g,F}$	0.5474
$P_{i,h}$	0.7803

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2689
$P'_{C,s}$	0.5731
$P'_{d,C'}$	0.2525
$P'_{e,d}$	0.2362
$P'_{g,F'}$	0.4857
$P'_{i,h}$	0.7732

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0137
$\Delta P_{C,s}$	-0.0055
$\Delta P_{F,e}$	0.0003
$\Delta P_{g,F}$	-0.0005
$\Delta P_{i,g}$	-0.0103

### Chemical Properties

CR	3
FR	3
SR	52.2
AR	2
PR	2.2

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.8
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.8
$T_g$ [°C]	633
$T_{10}^{13}$ [°C]	635
$T_{10}^{7.6}$ [°C]	758
$c_p$ [J/(g·K)]	0.540
$\lambda$ [W/(m·K)]	0.770
$\rho$ [g/cm <sup>3</sup> ]	3.64
$E$ [ $10^3$ N/mm <sup>2</sup> ]	81
$\mu$	0.266
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.25
$HK_{0.1/20}$	550
HG	3

## N-SK15 623580.362

$n_d = 1.62296$   
 $n_e = 1.62552$

$v_d = 58.02$   
 $v_e = 57.75$

$n_F - n_C = 0.010737$   
 $n_{F'} - n_{C'} = 0.010832$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.59268
$n_{1970.1}$	1970.1	1.59822
$n_{1529.6}$	1529.6	1.60411
$n_{1060.0}$	1060.0	1.61027
$n_t$	1014.0	1.61098
$n_s$	852.1	1.61396
$n_r$	706.5	1.61785
$n_C$	656.3	1.61970
$n_{C'}$	643.8	1.62022
$n_{632.8}$	632.8	1.62070
$n_D$	589.3	1.62286
$n_d$	587.6	1.62296
$n_e$	546.1	1.62552
$n_F$	486.1	1.63044
$n_{F'}$	480.0	1.63105
$n_g$	435.8	1.63629
$n_h$	404.7	1.64116
$n_i$	365.0	1.64947
$n_{334.1}$	334.1	1.65846
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.304177860
$B_2$	0.285841160
$B_3$	0.974781572
$C_1$	0.006950513
$C_2$	0.0232023703
$C_3$	99.01688400

### Constants of Formula for $dn/dT$

$D_0$	4.92E-07
$D_1$	1.20E-08
$D_2$	-2.96E-12
$E_0$	4.66E-07
$E_1$	5.16E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.179

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.0	2.6	3.2	-0.2	0.4	1.0
+20/+40	2.0	2.7	3.4	0.6	1.3	1.9
+60/+80	2.1	2.9	3.7	1.1	1.8	2.5

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.670	0.370
2325	0.830	0.620
1970	0.959	0.900
1530	0.990	0.975
1060	0.996	0.991
700	0.998	0.994
660	0.997	0.992
620	0.997	0.992
580	0.997	0.993
546	0.997	0.993
500	0.996	0.990
460	0.993	0.982
436	0.991	0.978
420	0.990	0.974
405	0.986	0.966
400	0.984	0.960
390	0.976	0.940
380	0.963	0.910
370	0.940	0.850
365	0.920	0.800
350	0.800	0.560
334	0.500	0.180
320	0.140	
310	0.010	
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  36/31

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2770
$P_{C,s}$	0.5348
$P_{d,C}$	0.3036
$P_{e,d}$	0.2384
$P_{g,F}$	0.5453
$P_{i,h}$	0.7742

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2746
$P'_{C,s}$	0.5780
$P'_{d,C'}$	0.2531
$P'_{e,d}$	0.2363
$P'_{g,F'}$	0.4840
$P'_{i,h}$	0.7674

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0084
$\Delta P_{C,s}$	-0.0033
$\Delta P_{F,e}$	0.0001
$\Delta P_{g,F}$	-0.0009
$\Delta P_{i,g}$	-0.0102

### Chemical Properties

CR	3
FR	3
SR	52.2
AR	2
PR	3.2

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.7
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.6
$T_g$ [°C]	641
$T_{10}^{13}$ [°C]	634
$T_{10}^{7.6}$ [°C]	752
$c_p$ [J/(g·K)]	0.570
$\lambda$ [W/(m·K)]	0.770
$\rho$ [g/cm <sup>3</sup> ]	3.62
$E$ [ $10^3$ N/mm <sup>2</sup> ]	84
$\mu$	0.265
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	1.93
$HK_{0.1/20}$	620
HG	3

## P-PK53 527662.283

$n_d = 1.52690$   
 $n_e = 1.52880$

$v_d = 66.22$   
 $v_e = 65.92$

$n_F - n_C = 0.007957$   
 $n_F - n_C' = 0.008022$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	
$n_{1970.1}$	1970.1	1.50808
$n_{1529.6}$	1529.6	1.51265
$n_{1060.0}$	1060.0	1.51738
$n_t$	1014.0	1.51792
$n_s$	852.1	1.52017
$n_r$	706.5	1.52309
$n_C$	656.3	1.52447
$n_{C'}$	643.8	1.52486
$n_{632.8}$	632.8	1.52522
$n_D$	589.3	1.52683
$n_d$	587.6	1.52690
$n_e$	546.1	1.52880
$n_F$	486.1	1.53243
$n_{F'}$	480.0	1.53288
$n_g$	435.8	1.53673
$n_h$	404.7	1.54029
$n_i$	365.0	1.54633
$n_{334.1}$	334.1	1.55280
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	0.960316767
$B_2$	0.340437227
$B_3$	0.777865595
$C_1$	0.005310330
$C_2$	0.0175073434
$C_3$	106.87533000

### Constants of Formula for $dn/dT$

$D_0$	-1.65E-05
$D_1$	-5.14E-10
$D_2$	-2.02E-11
$E_0$	4.11E-07
$E_1$	4.17E-10
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.208

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	-4.9	-4.5	-4.1	-7.0	-6.6	-6.2
+20/+40	-5.6	-5.2	-4.7	-6.9	-6.5	-6.1
+60/+80	-6.0	-5.5	-5.0	-7.0	-6.5	-6.0

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.470	0.150
2325	0.570	0.250
1970	0.790	0.550
1530	0.981	0.954
1060	0.998	0.994
700	0.997	0.992
660	0.997	0.992
620	0.998	0.994
580	0.998	0.996
546	0.999	0.997
500	0.998	0.995
460	0.996	0.990
436	0.995	0.987
420	0.994	0.985
405	0.994	0.985
400	0.994	0.985
390	0.990	0.976
380	0.980	0.950
370	0.959	0.900
365	0.940	0.860
350	0.820	0.600
334	0.520	0.190
320	0.180	0.010
310	0.040	0.000
300	0.000	
290	0.000	
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  36/31

### Remarks

inquiry glass  
suitable for precision molding

### Relative Partial Dispersion P

$P_{s,t}$	0.2829
$P_{C,s}$	0.5408
$P_{d,C}$	0.3049
$P_{e,d}$	0.2386
$P_{g,F}$	0.5408
$P_{i,h}$	0.7592

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2806
$P'_{C,s}$	0.5846
$P'_{d,C'}$	0.2542
$P'_{e,d}$	0.2366
$P'_{g,F'}$	0.4802
$P'_{i,h}$	0.7530

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0354
$\Delta P_{C,s}$	-0.0165
$\Delta P_{F,e}$	0.0030
$\Delta P_{g,F}$	0.0084
$\Delta P_{i,g}$	0.0375

### Chemical Properties

CR	2
FR	1
SR	51
AR	4.3
PR	4.3
SR-J	3
WR-J	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	13.3
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	16.0
$T_g$ [°C]	383
$T_{10}^{13}$ [°C]	390
$T_{10}^{7.6}$ [°C]	453
$c_p$ [J/(g·K)]	0.770
$\lambda$ [W/(m·K)]	0.640
AT [°C]	418
$\rho$ [g/cm <sup>3</sup> ]	2.83
$E$ [ $10^3$ N/mm <sup>2</sup> ]	59
$\mu$	0.271
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.06
HK <sub>0,1/20</sub>	335
HG	6
Abrasion Aa	977



## P-SF67 907214.424

$n_d = 1.90680$   
 $n_e = 1.91675$

$v_d = 21.40$   
 $v_e = 21.23$

$n_F - n_C = 0.042374$   
 $n_{F'} - n_{C'} = 0.043191$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.83479
$n_{1970.1}$	1970.1	1.84280
$n_{1529.6}$	1529.6	1.85235
$n_{1060.0}$	1060.0	1.86543
$n_t$	1014.0	1.86727
$n_s$	852.1	1.87574
$n_r$	706.5	1.88833
$n_C$	656.3	1.89480
$n_{C'}$	643.8	1.89666
$n_{632.8}$	632.8	1.89841
$n_D$	589.3	1.90644
$n_d$	587.6	1.90680
$n_e$	546.1	1.91675
$n_F$	486.1	1.93717
$n_{F'}$	480.0	1.93985
$n_g$	435.8	1.96401
$n_h$	404.7	
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.974642250
$B_2$	0.467095921
$B_3$	2.431542090
$C_1$	0.014577232
$C_2$	0.0669790359
$C_3$	157.44489500

### Constants of Formula for $dn/dT$

$D_0$	4.82E-07
$D_1$	1.15E-08
$D_2$	-9.95E-12
$E_0$	1.15E-06
$E_1$	1.65E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.315

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	2.6	5.5	10.1	0.1	2.9	7.4
+20/+40	2.8	6.3	11.7	1.2	4.6	10.0
+60/+80	3.1	7.0	13.0	1.9	5.7	11.7

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.930	0.840
2325	0.950	0.870
1970	0.984	0.960
1530	0.994	0.985
1060	0.994	0.985
700	0.983	0.958
660	0.981	0.952
620	0.978	0.950
580	0.971	0.930
546	0.954	0.890
500	0.900	0.770
460	0.810	0.590
436	0.710	0.420
420	0.570	0.250
405	0.360	0.080
400	0.280	0.040
390	0.090	0.000
380	0.010	
370	0.000	
365		
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{70} / \lambda_{5}$  48/39

### Remarks

inquiry glass  
suitable for precision molding

### Relative Partial Dispersion P

$P_{s,t}$	0.1998
$P_{C,s}$	0.4498
$P_{d,C}$	0.2832
$P_{e,d}$	0.2348
$P_{g,F}$	0.6334
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.1960
$P'_{C,s}$	0.4843
$P'_{d,C'}$	0.2349
$P'_{e,d}$	0.2303
$P'_{g,F'}$	0.5595
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0031
$\Delta P_{C,s}$	-0.0030
$\Delta P_{F,e}$	0.0049
$\Delta P_{g,F}$	0.0256
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1
AR	1.3
PR	1
SR-J	1
WR-J	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	6.2
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	7.4
$T_g$ [°C]	539
$T_{10}^{13}$ [°C]	546
$T_{10}^{7.6}$ [°C]	663
$c_p$ [J/(g·K)]	0.530
$\lambda$ [W/(m·K)]	0.790
AT [°C]	601
$\rho$ [g/cm <sup>3</sup> ]	4.24
$E$ [ $10^3$ N/mm <sup>2</sup> ]	90
$\mu$	0.248
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.96
HK <sub>0,1/20</sub>	440
HG	3
Abrasion Aa	309

## SF57HT 847238.551

$n_d = 1.84666$   
 $n_e = 1.85504$

$v_d = 23.83$   
 $v_e = 23.64$

$n_F - n_C = 0.035536$   
 $n_{F'} - n_{C'} = 0.036166$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.79026
$n_{1970.1}$	1970.1	1.79539
$n_{1529.6}$	1529.6	1.80187
$n_{1060.0}$	1060.0	1.81185
$n_t$	1014.0	1.81335
$n_s$	852.1	1.82038
$n_r$	706.5	1.83102
$n_C$	656.3	1.83650
$n_{C'}$	643.8	1.83808
$n_{632.8}$	632.8	1.83957
$n_D$	589.3	1.84636
$n_d$	587.6	1.84666
$n_e$	546.1	1.85504
$n_F$	486.1	1.87204
$n_{F'}$	480.0	1.87425
$n_g$	435.8	1.89393
$n_h$	404.7	1.91366
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.816513710
$B_2$	0.428893641
$B_3$	1.071862780
$C_1$	0.014370420
$C_2$	0.0592801172
$C_3$	121.41994200

### Constants of Formula for $dn/dT$

$D_0$	7.26E-06
$D_1$	1.88E-08
$D_2$	-5.14E-11
$E_0$	1.96E-06
$E_1$	1.79E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.276

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	6.6	11.1	16.7	4.2	8.6	14.1
+20/+40	7.6	12.5	18.9	6.0	10.9	17.2
+60/+80	8.0	13.4	20.1	6.8	12.1	18.8

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.910	0.790
2325	0.930	0.830
1970	0.979	0.950
1530	0.998	0.994
1060	0.999	0.999
700	0.999	0.997
660	0.999	0.997
620	0.999	0.997
580	0.999	0.997
546	0.998	0.996
500	0.996	0.990
460	0.990	0.976
436	0.981	0.954
420	0.964	0.910
405	0.920	0.810
400	0.900	0.760
390	0.790	0.550
380	0.580	0.250
370	0.230	0.030
365	0.080	
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{70} / \lambda_{5}$  40/36

### Remarks

inquiry glass, lead containing

### Relative Partial Dispersion P

$P_{s,t}$	0.1976
$P_{C,s}$	0.4539
$P_{d,C}$	0.2859
$P_{e,d}$	0.2356
$P_{g,F}$	0.6160
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.1942
$P'_{C,s}$	0.4895
$P'_{d,C'}$	0.2373
$P'_{e,d}$	0.2315
$P'_{g,F'}$	0.5443
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	-0.0065
$\Delta P_{C,s}$	-0.0046
$\Delta P_{F,e}$	0.0026
$\Delta P_{g,F}$	0.0123
$\Delta P_{i,g}$	

### Chemical Properties

CR	2
FR	5
SR	52.3
AR	2.3
PR	4.3
SR-J	6
WR-J	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.3
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.2
$T_g$ [°C]	414
$T_{10}^{13}$ [°C]	414
$T_{10}^{7.6}$ [°C]	507
$c_p$ [J/(g·K)]	0.360
$\lambda$ [W/(m·K)]	0.620
AT [°C]	449
$\rho$ [g/cm <sup>3</sup> ]	5.51
$E$ [ $10^3$ N/mm <sup>2</sup> ]	54
$\mu$	0.248
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	0.02
HK <sub>0,1/20</sub>	350
HG	1
Abrasion Aa	344

## SFL6 805254.337

$n_d = 1.80518$   
 $n_e = 1.81265$

$v_d = 25.39$   
 $v_e = 25.19$

$n_F - n_C = 0.031708$   
 $n_F - n_C = 0.032260$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.74897
$n_{1970.1}$	1970.1	1.75544
$n_{1529.6}$	1529.6	1.76311
$n_{1060.0}$	1060.0	1.77345
$n_t$	1014.0	1.77489
$n_s$	852.1	1.78147
$n_r$	706.5	1.79116
$n_C$	656.3	1.79609
$n_{C'}$	643.8	1.79751
$n_{632.8}$	632.8	1.79884
$n_D$	589.3	1.80491
$n_d$	587.6	1.80518
$n_e$	546.1	1.81265
$n_F$	486.1	1.82780
$n_{F'}$	480.0	1.82977
$n_g$	435.8	1.84733
$n_h$	404.7	1.86500
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.789220560
$B_2$	0.328427448
$B_3$	2.016394410
$C_1$	0.013516354
$C_2$	0.0622729599
$C_3$	168.01471300

### Constants of Formula for $dn/dT$

$D_0$	-5.26E-06
$D_1$	7.41E-09
$D_2$	-1.89E-11
$E_0$	1.02E-06
$E_1$	1.62E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.288

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{re}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	-0.8	1.1	3.8	-3.2	-1.4	1.2
+20/+40	-1.0	1.4	4.7	-2.5	-0.1	3.1
+60/+80	-0.9	1.8	5.4	-2.1	0.5	4.2

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
<b>2500</b>		
2325	0.930	0.840
1970	0.980	0.950
1530	0.998	0.995
1060	0.995	0.988
700	0.996	0.989
660	0.995	0.988
620	0.993	0.983
580	0.992	0.980
546	0.988	0.970
500	0.976	0.940
460	0.959	0.900
436	0.940	0.860
420	0.920	0.810
405	0.880	0.720
400	0.850	0.670
390	0.770	0.520
380	0.570	0.250
370	0.210	0.020
365		
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{80} / \lambda_5$  45/37

### Remarks

inquiry glass

### Relative Partial Dispersion P

$P_{s,t}$	0.2075
$P_{C,s}$	0.4611
$P_{d,C}$	0.2867
$P_{e,d}$	0.2355
$P_{g,F}$	0.6159
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2040
$P'_{C,s}$	0.4970
$P'_{d,C'}$	0.2380
$P'_{e,d}$	0.2315
$P'_{g,F'}$	0.5444
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0032
$\Delta P_{C,s}$	-0.0010
$\Delta P_{F,e}$	0.0027
$\Delta P_{g,F}$	0.0148
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	2
AR	1
PR	1

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	9.0
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	10.3
$T_g$ [°C]	585
$T_{10}^{13}$ [°C]	592
$T_{10}^{7.6}$ [°C]	
$c_p$ [J/(g·K)]	
$\lambda$ [W/(m·K)]	
$\rho$ [g/cm <sup>3</sup> ]	3.37
$E$ [ $10^3$ N/mm <sup>2</sup> ]	93
$\mu$	0.260
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.79
$HK_{0.1/20}$	570

## SFL57 847236.355

$n_d = 1.84666$   
 $n_e = 1.85510$

$v_d = 23.62$   
 $v_e = 23.43$

$n_F - n_C = 0.035841$   
 $n_{F'} - n_{C'} = 0.036489$

### Refractive Indices

	$\lambda$ [nm]	
$n_{2325.4}$	2325.4	1.78487
$n_{1970.1}$	1970.1	1.79171
$n_{1529.6}$	1529.6	1.79989
$n_{1060.0}$	1060.0	1.81117
$n_t$	1014.0	1.81276
$n_s$	852.1	1.82007
$n_r$	706.5	1.83089
$n_C$	656.3	1.83643
$n_{C'}$	643.8	1.83802
$n_{632.8}$	632.8	1.83952
$n_D$	589.3	1.84635
$n_d$	587.6	1.84666
$n_e$	546.1	1.85510
$n_F$	486.1	1.87227
$n_{F'}$	480.0	1.87451
$n_g$	435.8	1.89456
$n_h$	404.7	1.91488
$n_i$	365.0	
$n_{334.1}$	334.1	
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

### Constants of Dispersion Formula

$B_1$	1.887423260
$B_2$	0.360534025
$B_3$	2.261893130
$C_1$	0.014593934
$C_2$	0.0648198946
$C_3$	176.06221100

### Constants of Formula for $dn/dT$

$D_0$	-3.63E-06
$D_1$	8.61E-09
$D_2$	-9.98E-12
$E_0$	1.10E-06
$E_1$	1.69E-09
$\lambda_{TK}$ [ $\mu\text{m}$ ]	0.293

### Temperature Coefficients of the Refractive Index

[°C]	$\Delta n_{rel}/\Delta T$ [ $10^{-6}/K$ ]			$\Delta n_{abs}/\Delta T$ [ $10^{-6}/K$ ]		
	1060.0	e	g	1060.0	e	g
-40/-20	0.1	2.4	5.6	-2.3	-0.1	3.0
+20/+40	0.1	2.9	6.8	-1.5	1.2	5.1
+60/+80	0.2	3.3	7.7	-1.0	2.1	6.4

### Internal Transmittance $\tau_i$

$\lambda$ [nm]	$\tau_i$ [10mm]	$\tau_i$ [25mm]
2500	0.880	0.730
2325	0.910	0.790
1970	0.984	0.960
1530	0.996	0.990
1060	0.996	0.991
700	0.990	0.976
660	0.987	0.969
620	0.988	0.971
580	0.988	0.971
546	0.982	0.955
500	0.954	0.890
460	0.910	0.800
436	0.850	0.670
420	0.770	0.520
405	0.610	0.290
400	0.530	0.200
390	0.260	0.030
380	0.050	
370		
365		
350		
334		
320		
310		
300		
290		
280		
270		
260		
250		

### Color Code

$\lambda_{70} / \lambda_{5}$  44/38

### Remarks

inquiry glass, lead containing

### Relative Partial Dispersion P

$P_{s,t}$	0.2038
$P_{C,s}$	0.4566
$P_{d,C}$	0.2855
$P_{e,d}$	0.2353
$P_{g,F}$	0.6218
$P_{i,h}$	

### Relative Partial Dispersion P'

$P'_{s,t}$	0.2002
$P'_{C,s}$	0.4920
$P'_{d,C'}$	0.2369
$P'_{e,d}$	0.2311
$P'_{g,F'}$	0.5495
$P'_{i,h}$	

### Deviation of Rel. Partial Disp.

#### $\Delta P$ from the normal line

$\Delta P_{C,t}$	0.0034
$\Delta P_{C,s}$	-0.0014
$\Delta P_{F,e}$	0.0033
$\Delta P_{g,F}$	0.0177
$\Delta P_{i,g}$	

### Chemical Properties

CR	1
FR	0
SR	1.3
AR	1
PR	1.3

### Other Properties

$\alpha_{-30/+70^\circ\text{C}}$ [ $10^{-6}/K$ ]	8.7
$\alpha_{+20/+300^\circ\text{C}}$ [ $10^{-6}/K$ ]	10.0
$T_g$ [°C]	598
$T_{10}^{13}$ [°C]	
$T_{10}^{7.6}$ [°C]	700
$c_p$ [J/(g·K)]	0.670
$\lambda$ [W/(m·K)]	0.997
$\rho$ [g/cm <sup>3</sup> ]	3.55
$E$ [ $10^3$ N/mm <sup>2</sup> ]	97
$\mu$	0.261
$K$ [ $10^{-6}$ mm <sup>2</sup> /N]	2.73
$HK_{0.1/20}$	580
HG	3

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