

<b>H-ZF13</b>	<b>785257</b>
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nd =1.78472	vd =25.72	nF - nC =0.03051
ne =1.79191	ve =25.51	nF' - nc' =0.031042

Refractive Indices		
	$\lambda$ ( nm )	
$n_r$	706.5	1.77122
$n_c$	656.3	1.77597
$n_{c'}$	643.8	1.77733
$n_{He-Ne}$	632.8	1.77861
$n_D$	589.3	1.78446
$n_d$	587.6	1.78472
$n_e$	546.1	1.79191
$n_F$	486.1	1.80648
$n_{F'}$	480.0	1.80837
$n_g$	435.8	1.82527
$n_h$	404.7	1.84225
$n_i$	365.0	

Chemical Properties	
	Group
RC(S)	1
RA(S)	1
DW	1
DA	1

Internal Transmittance		
$\lambda$ ( nm )	$\tau_{5mm}$	$\tau_{10mm}$
2400	0.95	0.902
2200	0.969	0.939
2000	0.985	0.97
1800	0.992	0.985
1600	0.999	0.998
1400	0.999	0.998
1200	0.999	0.998
1060	0.999	0.998
1000	0.999	0.998
950	0.999	0.998
900	0.999	0.998
850	0.999	0.998
800	0.998	0.996
700	0.996	0.993
650	0.996	0.992
600	0.995	0.991
550	0.994	0.988
500	0.989	0.979
480	0.986	0.973
460	0.982	0.965
440	0.975	0.95
420	0.952	0.907
400	0.89	0.79
390	0.79	0.63
380	0.58	0.34
370	0.24	0.06
360		
350		
340		
330		
320		
310		
300		
290		
280		

Thermal Properties	
$T_g$ ( °C )	585
$T_s$ ( °C )	627
$T_{10}^{14.5}$ ( °C )	556
$T_{10}^{13}$ ( °C )	593
$\alpha_{20/120^\circ C}$ ( $10^{-7}/K$ )	91.67
$\alpha_{20/300^\circ C}$ ( $10^{-7}/K$ )	102.73

Constants of Dispersion (Cauchy)	
$A_0$	3.0534415
$A_1$	$-1.27518101 \times 10^{-2}$
$A_2$	$4.06093691 \times 10^{-2}$
$A_3$	$2.27061091 \times 10^{-3}$
$A_4$	$-7.80866061 \times 10^{-5}$
$A_5$	$1.98740261 \times 10^{-5}$

Mechanical Properties	
Hardness ( $10^7 Pa$ )	544
FA (Relative Abrasion)	0.43
Young's Modulus ( $10^7 Pa$ )	9196
Rigidity Modulus ( $10^7 Pa$ )	3675
Poisson's Ratio	0.251

Relative Partial Dispersions			
$P_{d,c}$	0.2868	$P'_{d,c'}$	0.2381
$P_{e,d}$	0.2357	$P'_{e,d}$	0.2316
$P_{g,F}$	0.6159	$P'_{g,F'}$	0.5445

Photoelastic Constant	
$\beta$ ( $10^{-12}/Pa$ )	

Deviation of Relative Partial Dispersions	
$\Delta P_{F,e}$	0.0015
$\Delta P_{g,F}$	0.015

Color	
$\lambda_{80}/\lambda_5$	44/38

Specific Gravity	
$\rho$ ( $g/cm^3$ )	3.22

NHG	HOYA	OHARA	SCHOTT
H-ZF13	FD110	S-TIH11	N-SF11



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