

Specification Physical and chemical properties	PCP D 0785								
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">LaSF 1.8/35</td> <td style="width: 40%; text-align: right;">D 0785</td> </tr> <tr> <td>Colour:</td> <td>clear</td> </tr> <tr> <td>Application:</td> <td>High index light weight glass for corrective lenses with very high power</td> </tr> <tr> <td colspan="2" style="padding-top: 20px;"> <p>The subsequent properties are based primarily upon the measuring results of the very latest standards and measuring methods, which are defined in corresponding "Measuring and Test Procedures". We retain the right to change the data in keeping with the latest technical standards. Non-toleranced numerical values are reference values of an average production quality.</p> <p>Because this glass type is produced by another company we specified the original data sheet values of the manufacturer in <i>italic letters</i> and added another Barberini GmbH specific characteristic values.</p> <p>Values marked with \diamond do not apply to the type of glass or no values are available.</p> <p>Requirements deviating from these specifications must be defined in writing in a customer agreement.</p> </td> </tr> </table>		LaSF 1.8/35	D 0785	Colour:	clear	Application:	High index light weight glass for corrective lenses with very high power	<p>The subsequent properties are based primarily upon the measuring results of the very latest standards and measuring methods, which are defined in corresponding "Measuring and Test Procedures". We retain the right to change the data in keeping with the latest technical standards. Non-toleranced numerical values are reference values of an average production quality.</p> <p>Because this glass type is produced by another company we specified the original data sheet values of the manufacturer in <i>italic letters</i> and added another Barberini GmbH specific characteristic values.</p> <p>Values marked with \diamond do not apply to the type of glass or no values are available.</p> <p>Requirements deviating from these specifications must be defined in writing in a customer agreement.</p>	
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Specification		PCP D 0785					
Physical and chemical properties							
1.	Optical properties						
1.1	Refractive indices (20°C)						
	Pretreatment of samples	n_g	1.8239				
	[x] Condition as supplied	$n_{F'}$	1.8120				
	[] annealed at 40°C/h	n_F	1.8107				
		n_e	1.8000 ± 0.0015				
		n_d	1.7946				
		n_D	1.7944				
		$n_{C'}$	1.7890				
		n_C	1.7880				
1.1.1	Abbe value	v_e	34.8 ± 0.6				
		v_d	35.0				
1.2	Transmittance data						
1.2.1	Spectral transmittance $\tau(\lambda)$						
1.2.1.1	$\tau(\lambda)$ - curve						
	Plot of spectral transmittance $\tau(\lambda)$ for $d = 2.0$ mm ($\lambda = 300$ nm - 1500 nm)	see annex					
1.2.1.2	$\tau(\lambda)$ - individual values in % ($d = 2.0$ mm)						
	$\tau(\lambda)_{max}$ for the λ - range 280 - 315 nm	< 0.001					
	$\tau(\lambda)_{max}$ for the λ - range 315 - 350 nm	40					
	τ_{380}	79.5					
	$\tau(\lambda)_{min}$ for the λ - range 450 - 650 nm	◇					
	$\tau(\lambda)_{min}$ for the λ - range 500 - 650 nm	◇					
1.2.1.3	Edge wavelength ($d = 2.0$ mm)						
	Edge wavelength λ_C ($\tau = 0.46$) in nm	352					
1.2.2	Luminous transmittance τ_v						
1.2.2.1	Luminous transmittance τ_{vD65} in % at nominal thickness	84.9* ± 0.5					
	$d = 2.0$ mm * nominal transmittance						
	Luminous transmittance as a function of thickness						
	Thickness in mm	1.4	2.0	3.0	4.0	5.0	6.0
	τ_{vD65} in %	85.0	84.9	84.9	84.9	84.9	84.9
	τ_{vA} in %	85.1	85.0	85.0	85.0	85.0	85.0
	τ_{vC} in %	85.0	84.9	84.9	84.9	84.9	84.9

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Physical and chemical properties			
1.2.2.2	Shade N / Filter category		
	N for mean thickness $d =$ mm ($\tau_{vD65} =$ %)		◇
	N for mean thickness $d =$ mm ($\tau_{vD65} =$ %)		◇
	filter category for nominal transmittance $\tau_{vD65} =$ %		◇
1.2.3	Special transmittance values in % ($d = 2.0$ mm)		
1.2.3.1	UV - transmittance		
		τ_{UVA}	34.8
		τ_{SUV}	◇
		τ_{SUVA}	◇
		τ_{SUVB}	◇
1.2.3.2	IR - transmittance	τ_{SIR}	86
1.2.3.3	Solar blue - light transmittance	τ_{sb}	◇
1.3	Colour		
1.3.1	Visual evaluation		◇
1.3.2	Colorimetry		
	Chromaticity coordinates	X_{10}	0.315
		Y_{10}	0.333
	Chromaticity coordinates (colour locus) are referred to the Standard Illuminant D_{65} according to CIE 10°-observer for the nominal transmittance $\tau_{vD65} = 84.9$ % (refer to 1.2.2.1)		
1.3.3	Signal recognition		
	Relative visual attenuation coefficient Q	Q_{blue}	1.00
	for signal lights referred to the	Q_{green}	1.00
	nominal transmittance $\tau_{vD65} = 84.9$ %	Q_{yellow}	1.00
	(refer to 1.2.2.1)	Q_{red}	1.00
1.3.4	Yellowness index ($d = 10$ mm)		
		Y_i	3 ± 1

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2. Thermal properties		
2.1 Viscosities and corresponding temperatures		
Designation	Viscosity log η in dPas	Temperature ϑ in °C
Strain point	14.5	632
Annealing point	13.0	655
Softening point	7.6	778
Forming temperature	6.0	833
Forming temperature	5.0	874
Forming temperature	4.0	922
2.2 Transformation temperature T_g in °C		655
2.3 Coefficient of mean linear thermal expansion $\alpha_{(20^\circ\text{C}-300^\circ\text{C})}$ in 10^{-6} K^{-1} (Static measurement)		8.6
2.4 Fuseability		◇
2.5 Mean specific heat capacity c_p (20°C-100°C) in J/(g · K)		0.672
3. Mechanical properties		
3.1 Density ρ in g/cm³		3.60
3.2 Stress optical coefficient C in $1.02 \cdot 10^{-12} \text{ m}^2/\text{N}$		2.04
3.3 Breaking strength	A higher mechanical strength can be realized only by thermal toughening.	
3.3.1 Chemical toughening		not possible
3.3.2 Thermal toughening	Recommended minimum thickness d in mm for toughened safety glass lenses without corrective effect as per ball drop test (DIN EN 168)	
		2.5
3.4 Young's modulus E in kN/mm²		115
3.5 Poisson's ratio μ		0.283
3.6 Torsion modulus G in kN/mm²		45
3.7 Knoop hardness HK_{100}		570

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Specification		PCP D 0785	
Physical and chemical properties			
4.	Chemical properties		
4.1	Hydrolytic resistance acc. to DIN ISO 719		
	Hydrolytic class	HGB 1	
	Equivalent of alkali (Na ₂ O) per gram of glass grains in µg/g	11	
4.2	Acid resistance acc. to DIN 12 116		
	Acid class	S 4	
	Half surface weight loss after 6 hours in mg/dm ²	> 250	
4.3	Alkali resistance acc. to DIN ISO 695		
	Class	A 1	
	Surface weight loss after 3 hours in mg/dm ²	23	
4.4	Hazardous Substances		
	EC-directive 2002/95/EC (RoHS-directive)	on request	
5.	Electrical properties		disregard
6.	Other properties		disregard
7.	Annex (diagrams, curves)		

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Spectral Transmittance

Type of Glass: LaSF 1.8/35
Thickness: 2.00 mm

