

Specification

Physical and chemical properties

PCE

Photofilter Yellow 460 - Red 625

PHOTOFILTER

Colour range

Gelb 460	Yellow 460	D 7089
Gelb 490	Yellow 490	D 7283
Gelb 510	Yellow 510	D 7275
Gelb 520	Yellow 520	D 7270
Zitronengelb 530	Lemon-Yellow 530	D 7066
Gelb-Orange 550	Yellow-Orange 550	D 8048
Orange 565	Orange 565	D 8038
Rot-Orange 580	Red-Orange 580	D 8223
Rot 600	Red 600	D 8417
Rot 625	Red 625	D 8005

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.

Values marked with \diamond do not apply to the type of glass or no values are available.

Requirements deviating from these specifications must be defined in writing in a **customer agreement**.

Date of release: 7 July 2004

Form 0050/7A

Specification		PCE		
Physical and chemical properties		Photofilter Yellow 460		
1. Optical properties				
1.1	Refractive index	n_e	1.525	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			460 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
t_{vA}			91.0	
t_{vD65}			90.0	
t_{vC}			89.9	
1.3 Colour				
1.3.1 Visual evaluation			\diamond	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.477
			y	0.447
		D ₆₅	x	0.369
			y	0.443
		C	x	0.370
			y	0.435
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			717	
2.2 Transformation temperature T_g in °C			539	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE		
Physical and chemical properties		Photofilter Yellow 490		
1. Optical properties				
1.1	Refractive index	n_e	1.525	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			490 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
			t_{vA} 89.3	
			t_{vD65} 86.3	
			t_{vC} 86.0	
1.3 Colour				
1.3.1 Visual evaluation			◇	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.504
			y	0.471
		D ₆₅	x	0.427
			y	0.522
		C	x	0.432
			y	0.517
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			717	
2.2 Transformation temperature T_g in °C			539	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE	
Physical and chemical properties		Photofilter Yellow 510	
1. Optical properties			
1.1	Refractive index	n_e	1.526
1.2 Transmittance data			
1.2.1 Spectral transmittance $t(I)$			
1.2.1.1	$t(I)$ - curve		see annex
	Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)		
1.2.1.2	$t(I)$ - individual values in %		disregard
1.2.1.3 Edge wavelength ($d = 2.0$ mm)			
	Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature		510 ± 5
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)			
		t_{vA}	84.7
		t_{vD65}	78.7
		t_{vC}	78.5
1.3 Colour			
1.3.1	Visual evaluation		◇
1.3.2 Colorimetry			
	Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer	A x	0.524
		y	0.468
		D ₆₅ x	0.463
		y	0.522
		C x	0.469
		y	0.518
2. Thermal properties			
2.1 Viscosities and corresponding temperatures			
	Softening point in °C ($h = 10^{7.6}$ dPas)		704
2.2	Transformation temperature T_g in °C		535
2.3 Coefficient of thermal expansion a			
2.3.1	Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)		9.2
3. Mechanical properties			
3.1	Density r in g/cm ³ (annealed at 40 °C/h)		2.57

Specification		PCE		
Physical and chemical properties		Photofilter Yellow 520		
1. Optical properties				
1.1	Refractive index	n_e	1.514	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			520 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
			t_{vA} 80.9	
			t_{vD65} 72.8	
			t_{vC} 73.0	
1.3 Colour				
1.3.1 Visual evaluation			◇	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.537
			y	0.458
		D ₆₅	x	0.485
			y	0.507
		C	x	0.489
			y	0.504
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			719	
2.2 Transformation temperature T_g in °C			511	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20\text{ °C}; 300\text{ °C})$ in 10^{-6} K^{-1} (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE		
Physical and chemical properties		Photofilter Lemon-Yellow 530		
1. Optical properties				
1.1	Refractive index	n_e	1.514	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			530 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
			t_{vA} 76.5	
			t_{vD65} 66.7	
			t_{vC} 67.3	
1.3 Colour				
1.3.1 Visual evaluation			◇	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.549
			y	0.448
		D ₆₅	x	0.503
			y	0.492
		C	x	0.506
			y	0.490
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			719	
2.2 Transformation temperature T_g in °C			511	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE	
Physical and chemical properties		Photofilter Yellow-Orange 550	
1. Optical properties			
1.1	Refractive index	n_e	1.514
1.2 Transmittance data			
1.2.1 Spectral transmittance $t(I)$			
1.2.1.1	$t(I)$ - curve		see annex
	Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)		
1.2.1.2	$t(I)$ - individual values in %		disregard
1.2.1.3 Edge wavelength ($d = 2.0$ mm)			
	Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature		550 ± 5
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)			
		t_{vA}	62.3
		t_{vD65}	49.5
		t_{vC}	50.6
1.3 Colour			
1.3.1	Visual evaluation		\diamond
1.3.2 Colorimetry			
		A x	0.587
		y	0.413
	Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer	D ₆₅ x	0.557
		y	0.442
		C x	0.556
		y	0.442
2. Thermal properties			
2.1 Viscosities and corresponding temperatures			
	Softening point in °C ($h = 10^{7.6}$ dPas)		719
2.2	Transformation temperature T_g in °C		511
2.3 Coefficient of thermal expansion a			
2.3.1	Coefficient of mean linear thermal expansion $a(20\text{ °C}; 300\text{ °C})$ in 10^{-6} K^{-1} (static measurement)		9.0
3. Mechanical properties			
3.1	Density r in g/cm³ (annealed at 40 °C/h)		2.56

Specification		PCE		
Physical and chemical properties		Photofilter Orange 565		
1. Optical properties				
1.1	Refractive index	n_e	1.514	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			565 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
			t_{vA} 50.2	
			t_{vD65} 36.9	
			t_{vC} 37.7	
1.3 Colour				
1.3.1 Visual evaluation			◇	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.618
			y	0.382
		D ₆₅	x	0.599
			y	0.401
		C	x	0.598
			y	0.401
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			719	
2.2 Transformation temperature T_g in °C			511	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20\text{ °C}; 300\text{ °C})$ in 10^{-6} K^{-1} (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE		
Physical and chemical properties		Photofilter Red-Orange 580		
1. Optical properties				
1.1	Refractive index	n_e	1.514	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1	$t(I)$ - curve	Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)		
		see annex		
1.2.1.2	$t(I)$ - individual values in %	disregard		
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
	Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature	580 ± 5		
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
		t_{vA}	37.2	
		t_{vD65}	25.1	
		t_{vC}	25.6	
1.3 Colour				
1.3.1	Visual evaluation	\diamond		
1.3.2 Colorimetry				
	Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer	A	x	0.651
			y	0.349
		D ₆₅	x	0.640
			y	0.359
		C	x	0.640
			y	0.359
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
	Softening point in °C ($h = 10^{7.6}$ dPas)	719		
2.2	Transformation temperature T_g in °C	511		
2.3 Coefficient of thermal expansion a				
2.3.1	Coefficient of mean linear thermal expansion			
	$a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)	9.0		
3. Mechanical properties				
3.1	Density r in g/cm³ (annealed at 40 °C/h)	2.56		

Specification		PCE		
Physical and chemical properties		Photofilter Red 600		
1. Optical properties				
1.1	Refractive index	n_e	1.514	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			600 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
t_{vA}			23.1	
t_{vD65}			14.2	
t_{vC}			14.4	
1.3 Colour				
1.3.1 Visual evaluation			\diamond	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.686
			y	0.314
		D ₆₅	x	0.681
			y	0.319
		C	x	0.681
			y	0.319
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			719	
2.2 Transformation temperature T_g in °C			511	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.56	

Specification		PCE		
Physical and chemical properties		Photofilter Red 625		
1. Optical properties				
1.1	Refractive index	n_e	1.512	
1.2 Transmittance data				
1.2.1 Spectral transmittance $t(I)$				
1.2.1.1 $t(I)$ - curve				
Plot of spectral transmittance $t(I)$ for $d = 2.0$ mm ($I = 360$ nm to 800 nm)			see annex	
1.2.1.2 $t(I)$ - individual values in %			disregard	
1.2.1.3 Edge wavelength ($d = 2.0$ mm)				
Edge wavelength I_c ($t = 0.46$) in nm at roomtemperature			625 ± 5	
1.2.2 Luminous transmittance t_v in % ($d = 2.0$ mm)				
t_{vA}			9.8	
t_{vD65}			5.3	
t_{vC}			5.6	
1.3 Colour				
1.3.1 Visual evaluation			\diamond	
1.3.2 Colorimetry				
Chromaticity coordinates (colour locus) for the declared edge wavelength I_c by the named standard illuminants acc. to CIE 2°-observer		A	x	0.714
			y	0.286
		D ₆₅	x	0.712
			y	0.288
		C	x	0.713
			y	0.287
2. Thermal properties				
2.1 Viscosities and corresponding temperatures				
Softening point in °C ($h = 10^{7.6}$ dPas)			725	
2.2 Transformation temperature T_g in °C			519	
2.3 Coefficient of thermal expansion a				
2.3.1 Coefficient of mean linear thermal expansion $a(20$ °C; 300 °C) in 10^{-6} K ⁻¹ (static measurement)			9.0	
3. Mechanical properties				
3.1 Density r in g/cm³ (annealed at 40 °C/h)			2.57	

Specification		PCE	
Physical and chemical properties		Photofilter Yellow 460 - Red 625	
4. Chemical properties			
4.1 Hydrolytic resistance acc. to DIN ISO 719			
		Hydrolytic class	HGB 3
5. Electrical properties			disregard
6. Other properties			disregard
7. Annex (diagrams, curves)			

Form 0050/7B

Specification

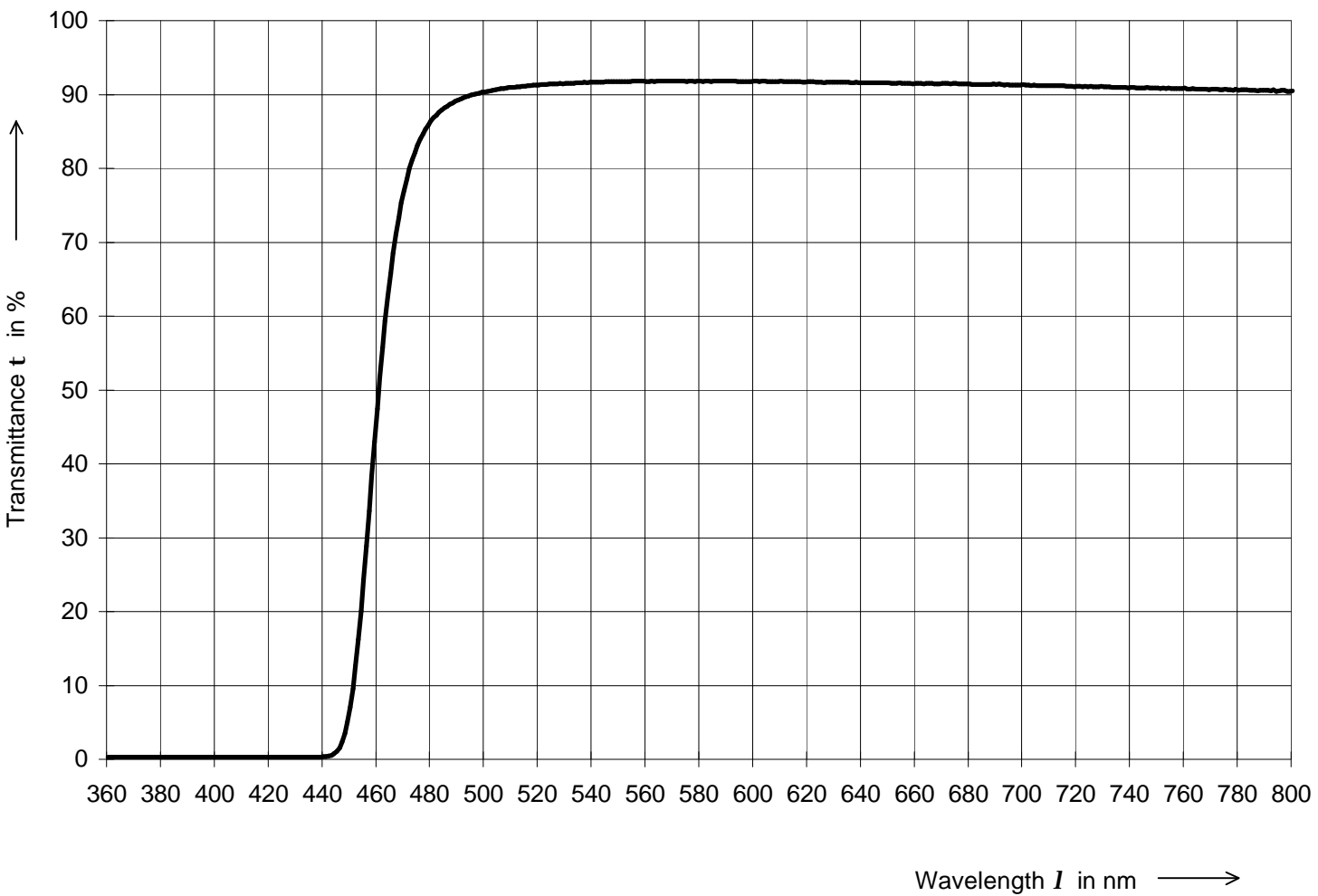
Physical and chemical properties

PCE

Photofilter Yellow 460

Spectral Transmittance

Type of Glass: Yellow 460
Thickness: 2.00 mm



Specification

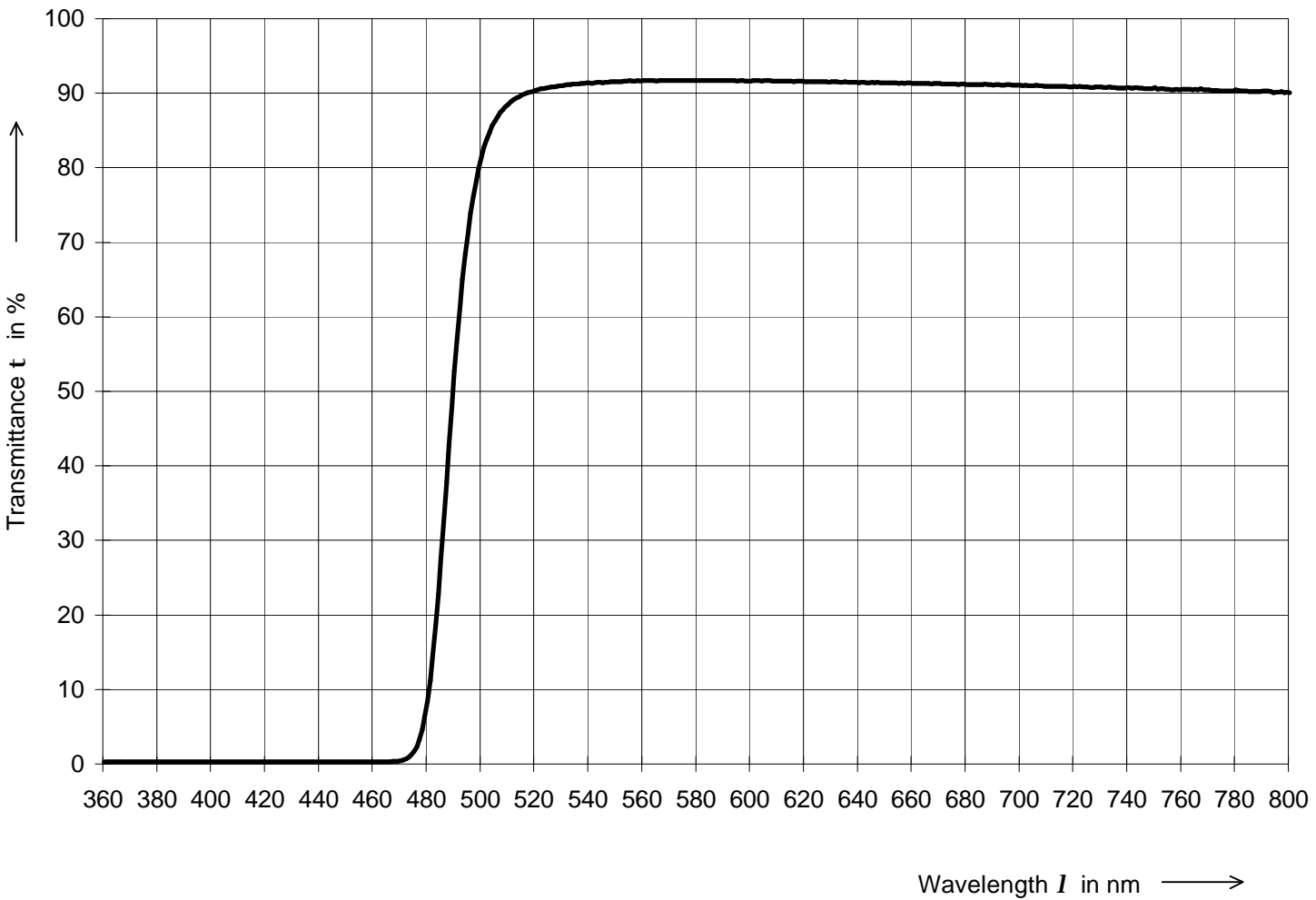
Physical and chemical properties

PCE

Photofilter Yellow 490

Spectral Transmittance

Type of Glass: Yellow 490
Thickness: 2.00 mm



Annex 1.2.1.1

Specification

Physical and chemical properties

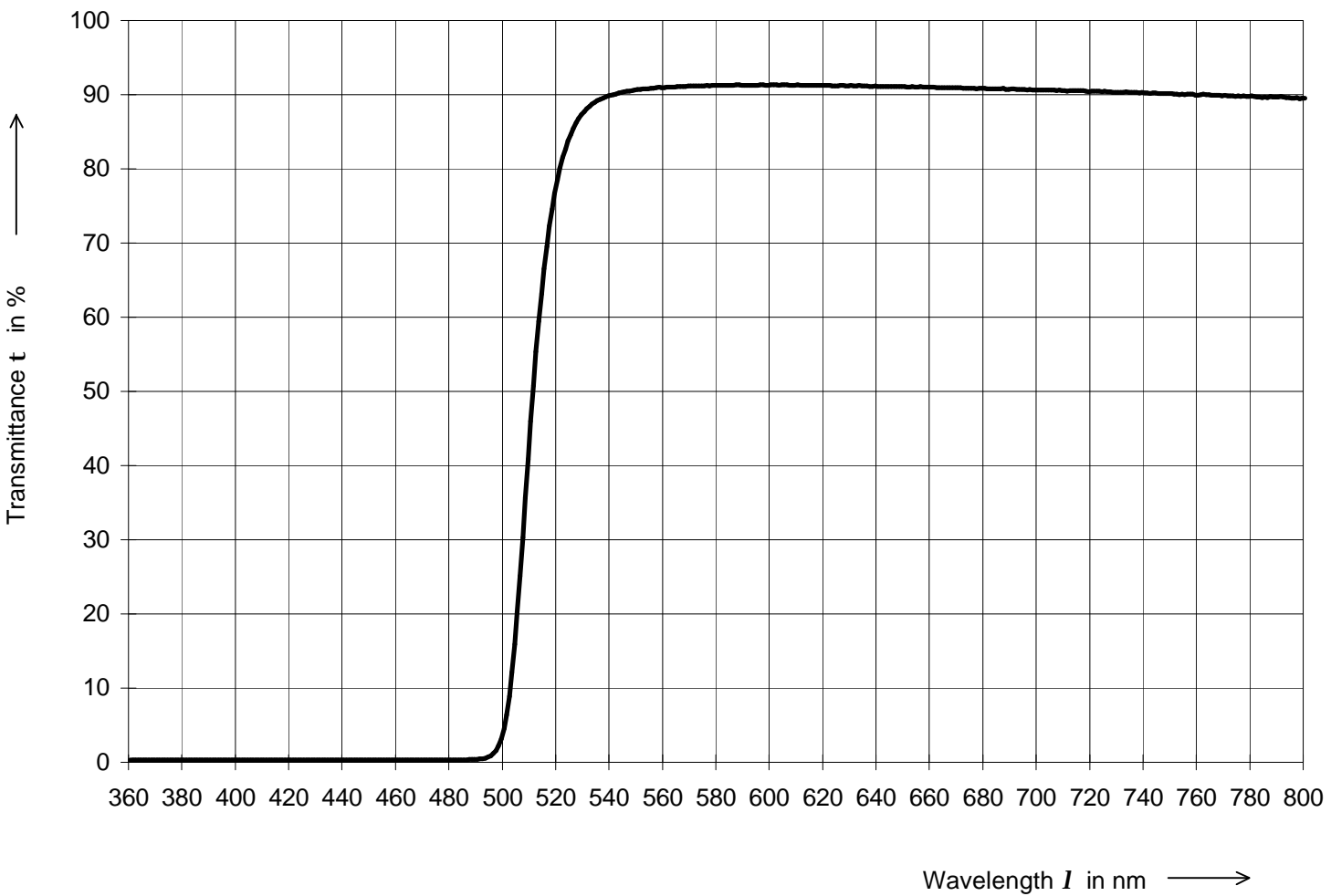
PCE

Photofilter Yellow 510

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Spectral Transmittance

Type of Glass: Yellow 510
Thickness: 2.00 mm



Annex 1.2.1.1

Specification

Physical and chemical properties

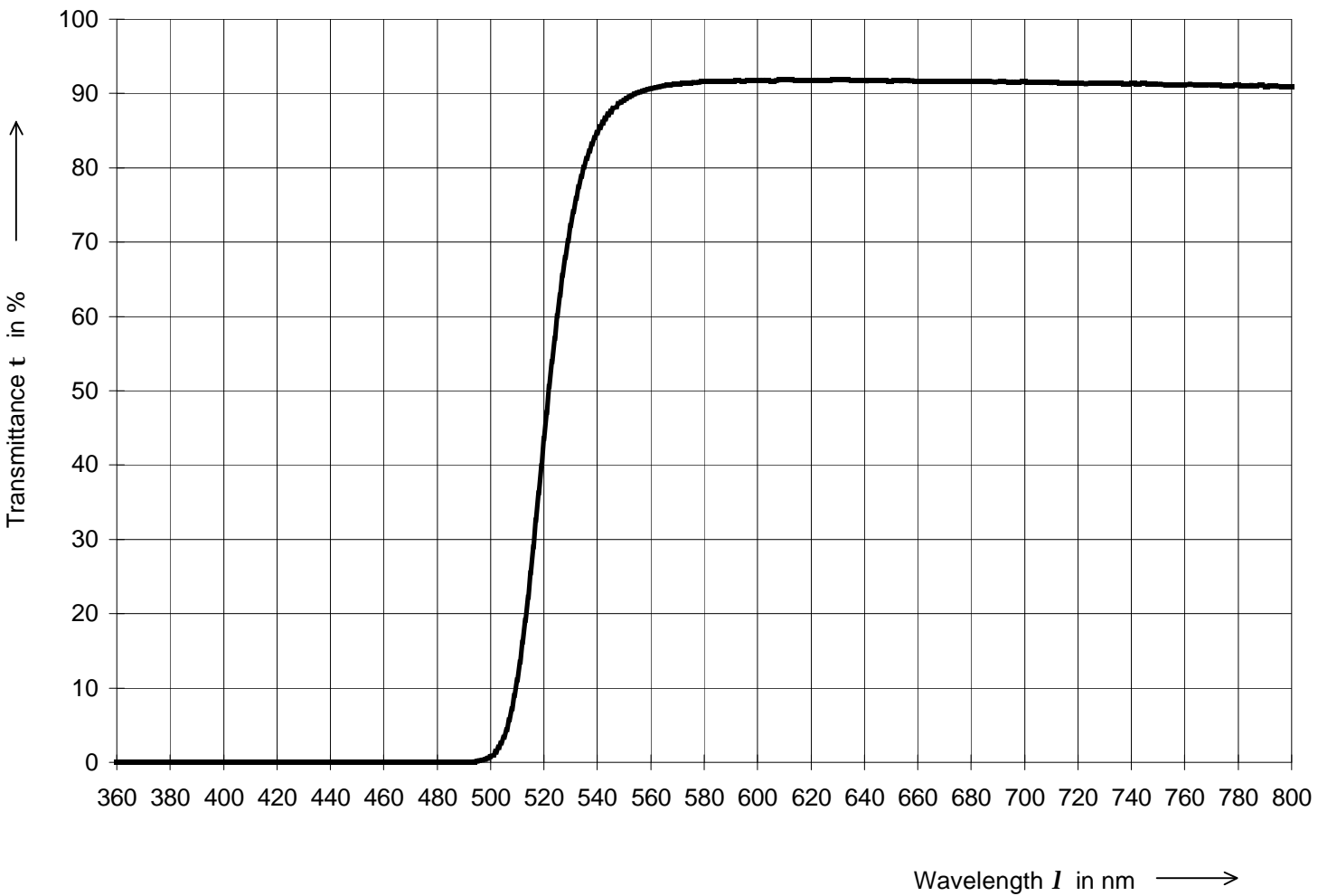
PCE

Photofilter Yellow 520

Form 0050/7B

Spectral Transmittance

Type of Glass: Yellow 520
Thickness: 2.00 mm



Annex 1.2.1.1

Specification

Physical and chemical properties

PCE

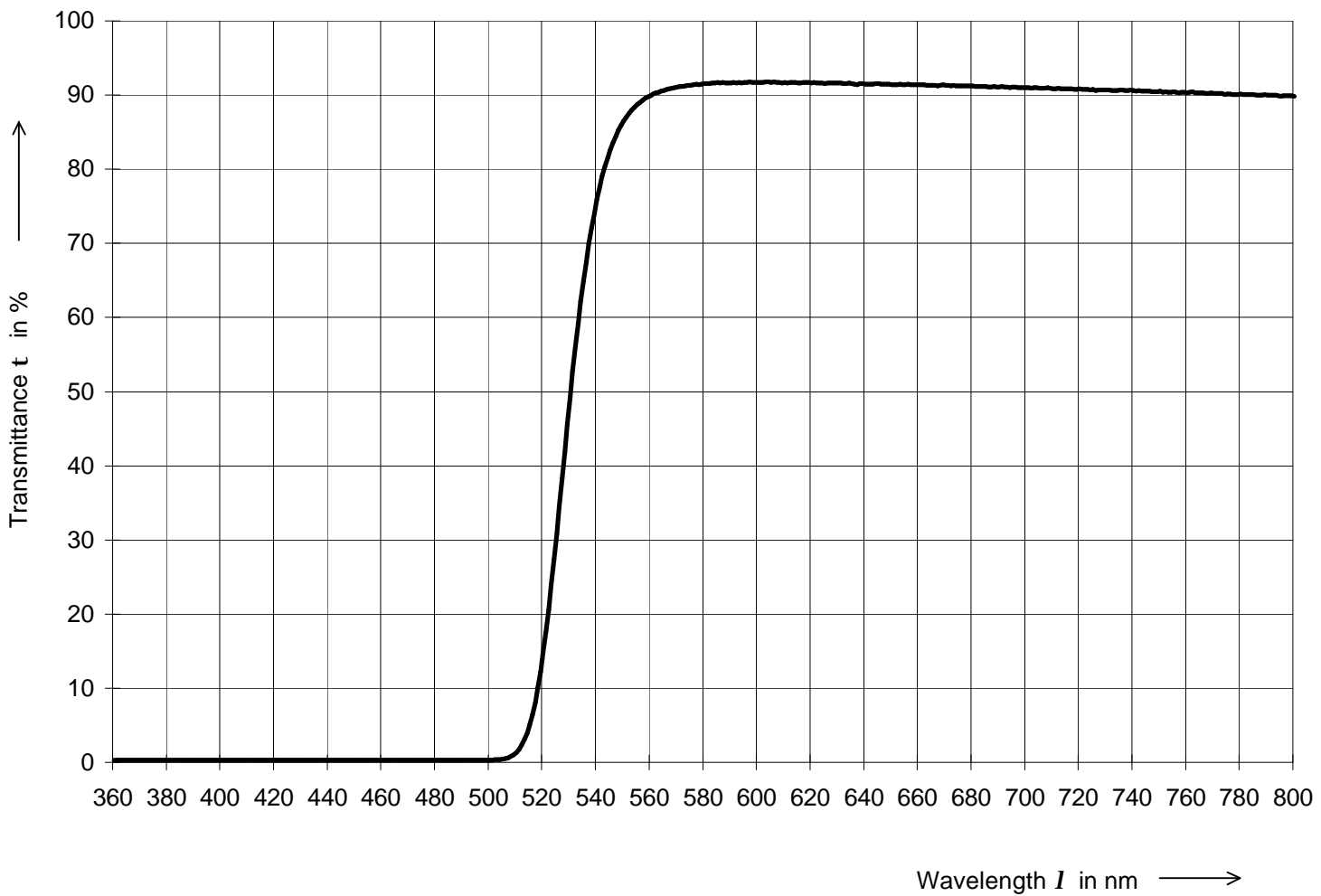
Photofilter Lemon - Yellow 530

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Spectral Transmittance

Type of Glass: Lemon-Yellow 530

Thickness: 2.00 mm



Annex 1.2.1.1

Specification

Physical and chemical properties

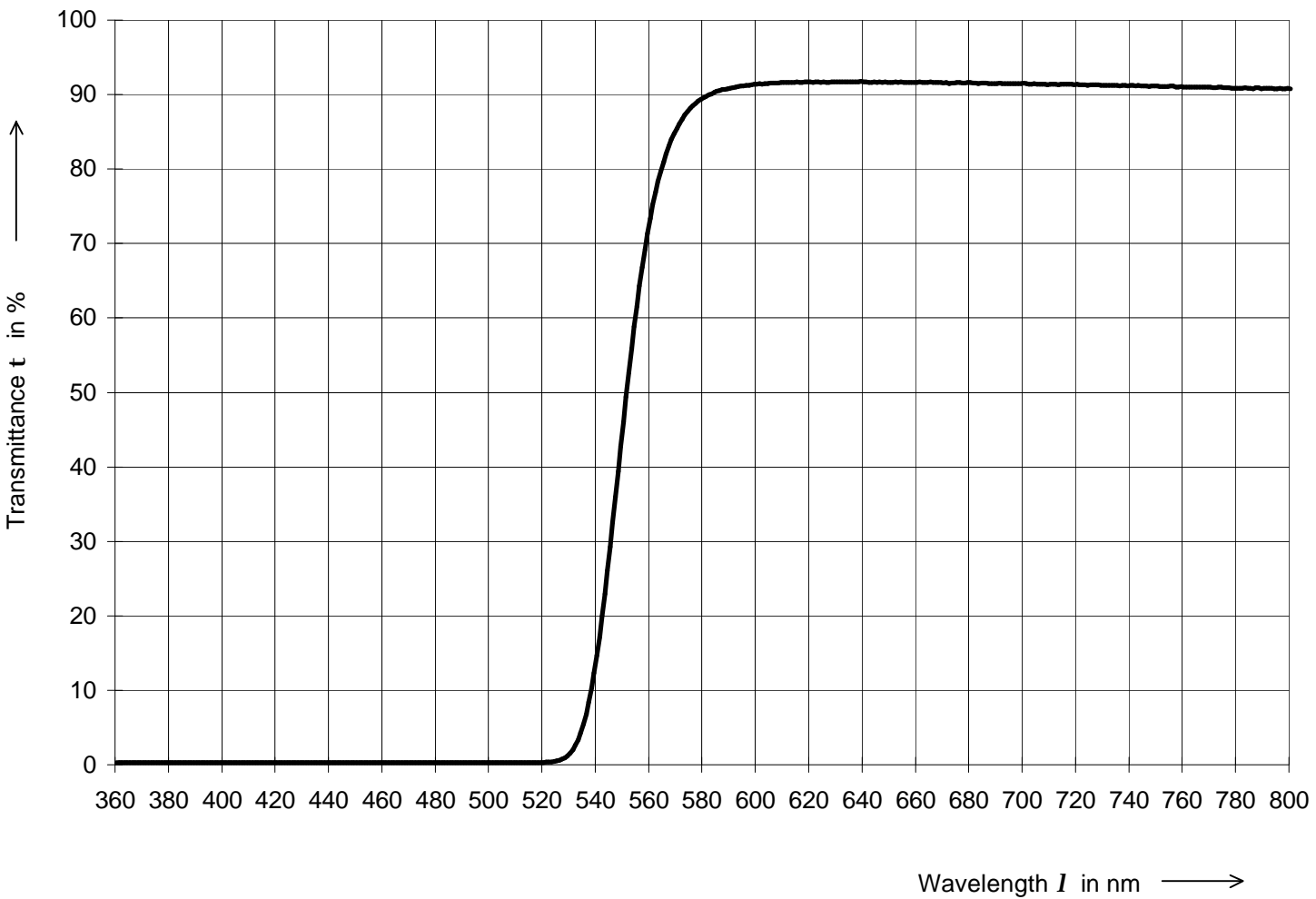
PCE

Photofilter Yellow-Orange 550

Form 0050/7B

Spectral Transmittance

Type of Glass: Yellow-Orange 550
Thickness: 2.00 mm



Specification

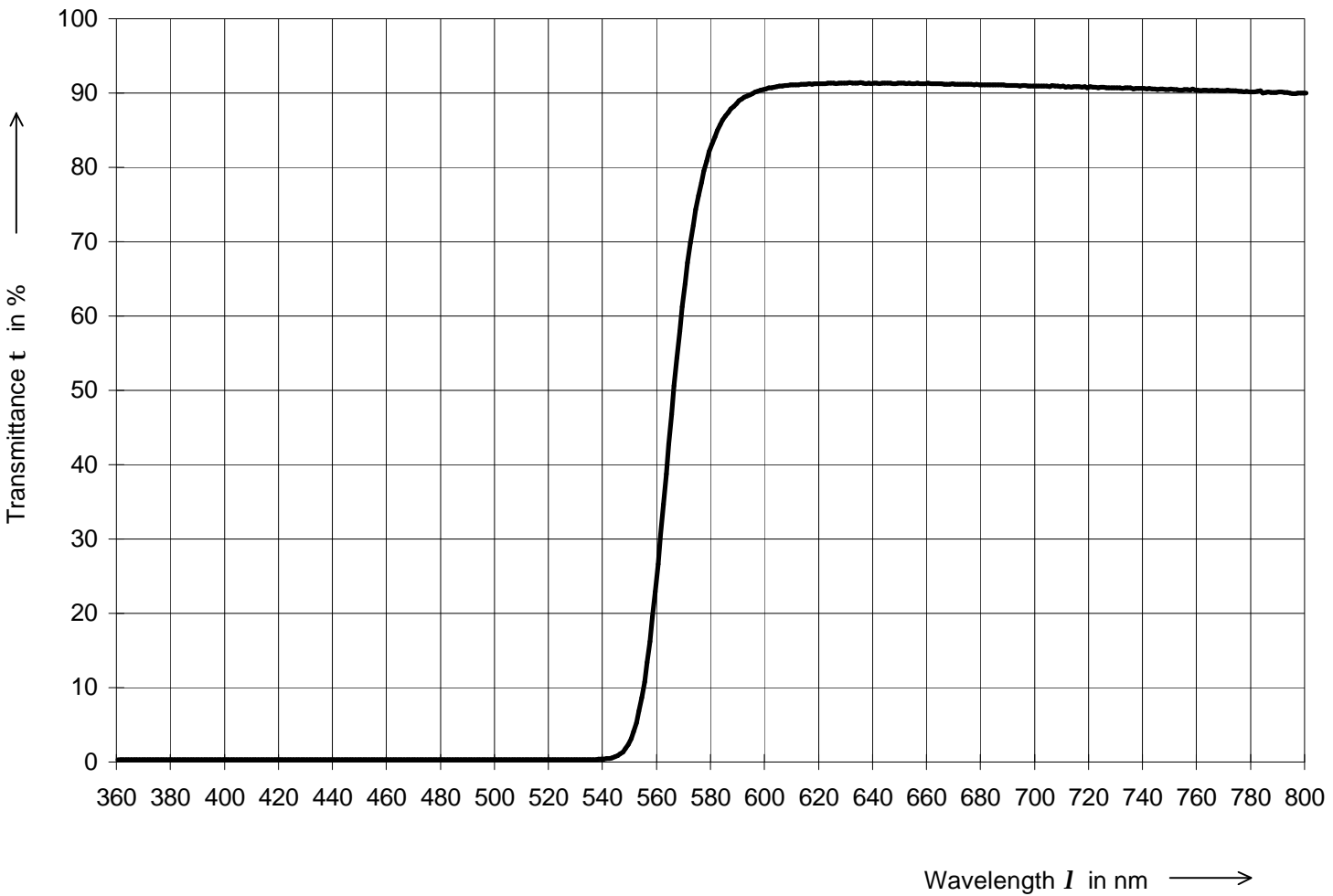
Physical and chemical properties

PCE

Photofilter Orange 565

Spectral Transmittance

Type of Glass: Orange 565
Thickness: 2.00 mm



Annex 1.2.1.1

Specification

Physical and chemical properties

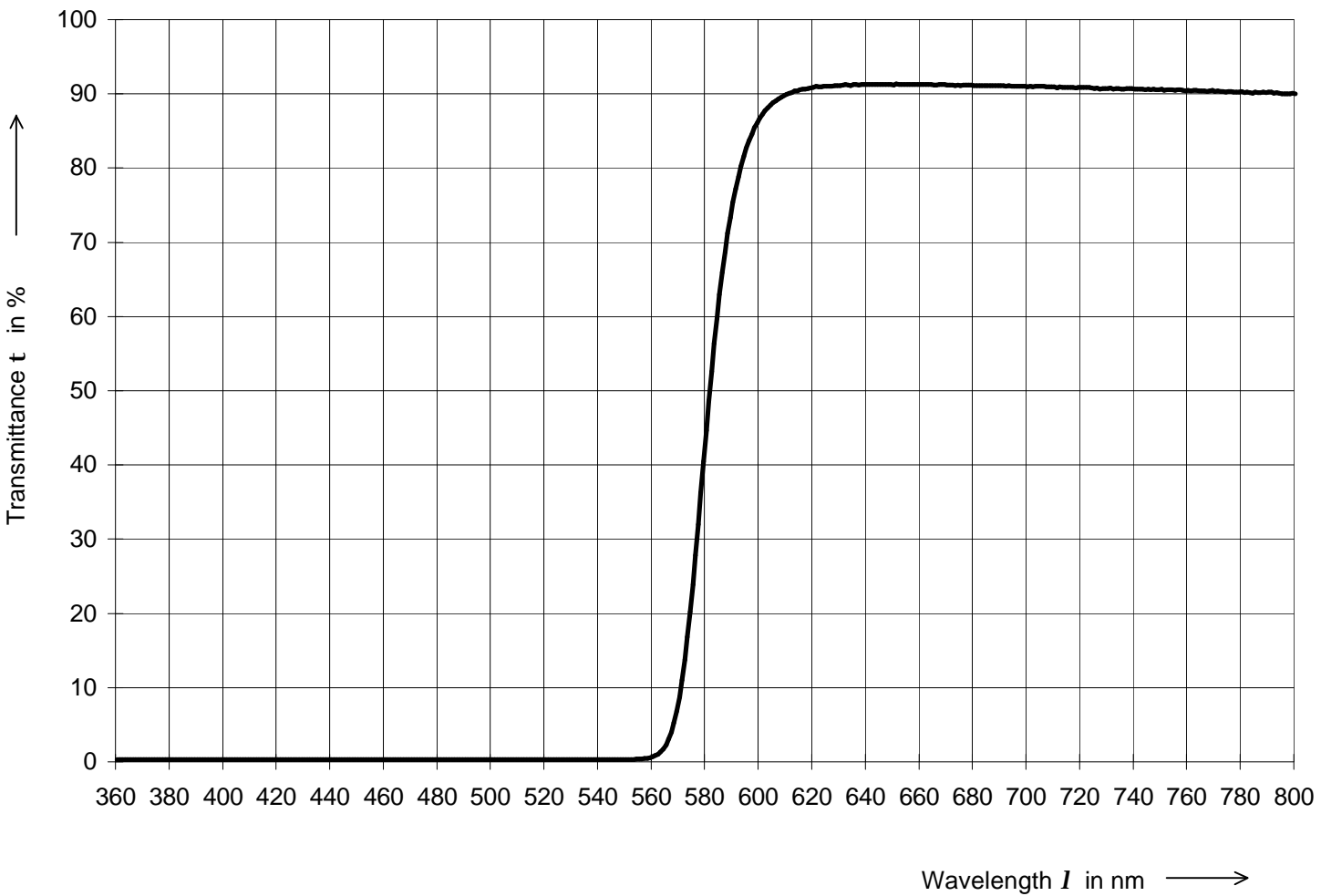
PCE

Photofilter Red-Orange 580

Form 0050/7B

Spectral Transmittance

Type of Glass: Red-Orange 580
Thickness: 2.00 mm



Specification

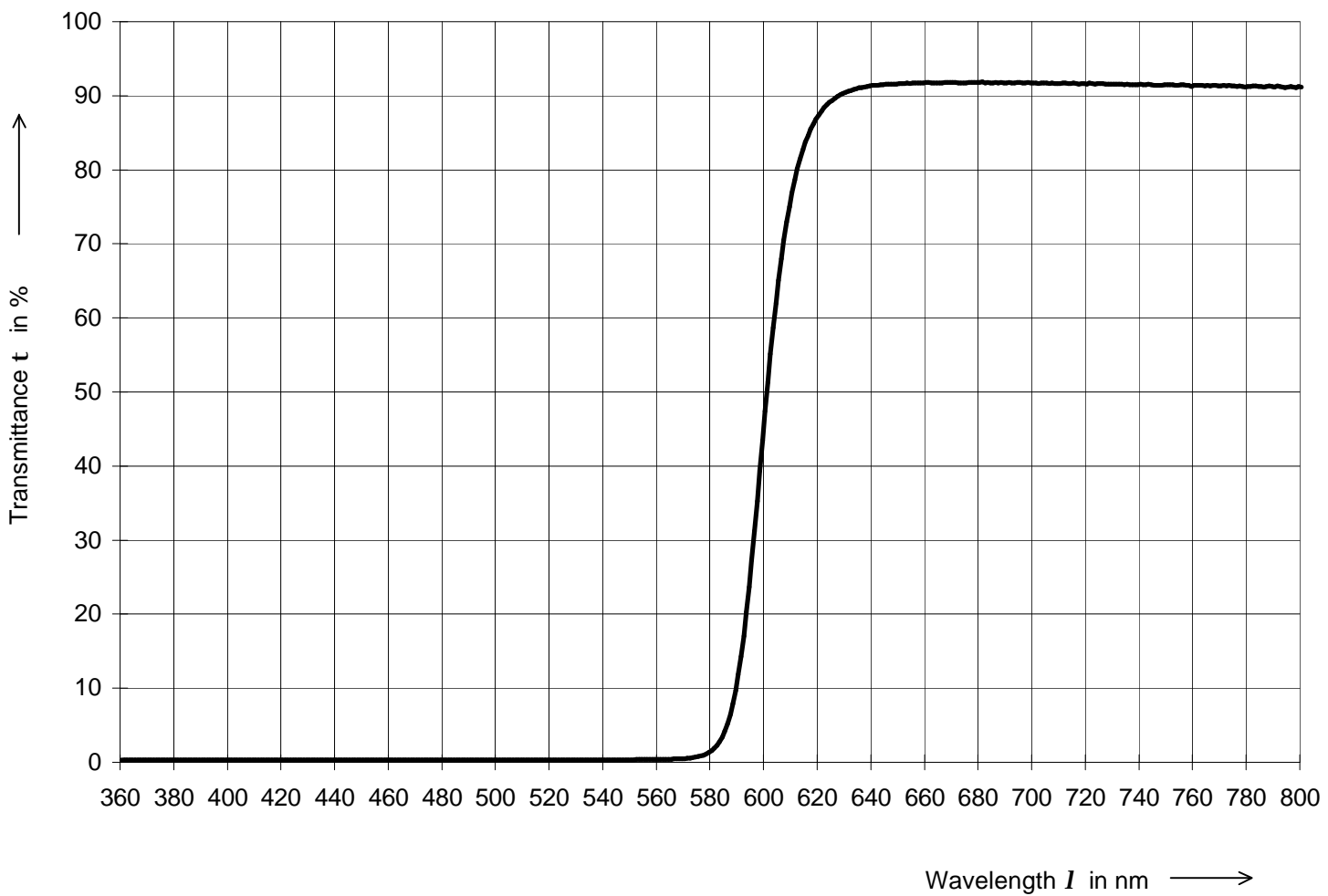
Physical and chemical properties

PCE

Photofilter Red 600

Spectral Transmittance

Type of Glass: Red 600
Thickness: 2.00 mm



Specification

Physical and chemical properties

PCE

Photofilter Red 625

Spectral Transmittance

Type of Glass: Red 625
Thickness: 2.00 mm

