

Glass designation :

PHOTOGRAY 16

Code **60055**

Color : **Clear to medium gray**
 Glass type : **High Index Photochromic crown glass.**

Application : **Ophthalmic lenses : Single vision, G&P progressive addition.**

PHYSICAL PROPERTIES

Density : **2.70 g/cm³**
 Linear Exp. Coef. : **60 10⁻⁷/ °C**
 Viscosity : **Soft. Pt 685 °C**
 Ann. Pt 530 °C
 Strain Pt 495 °C

REFRACTIVE INDEX

Line		λ (nm)	Value
F'	Cadmium	480.0	1.61123
F	Hydrogen	486.1	1.60151
e	Mercury	546.1	1.60387
d	Helium	587.6	1.60050
C'	Cadmium	643.8	1.59694
C	Hydrogen	656.3	1.59629
Abbe Number		ve	42.0
		vd	42.2

TRANSMISSION PROPERTIES (2 mm)

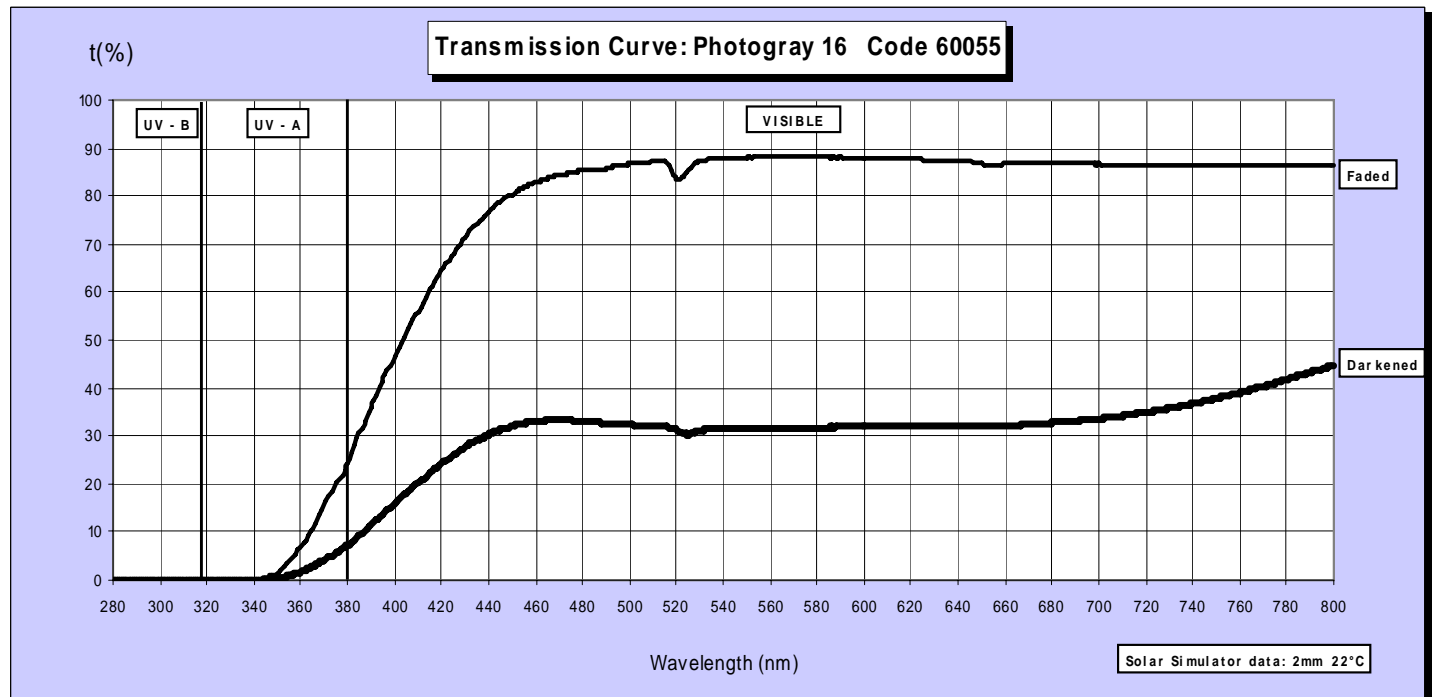
VISIBLE 380 - 780 nm	Heat Faded	Darkened
Luminous transmission factor	88.0%	32.0%
ULTRAVIOLET		
t(max) 280 - 315 nm	<0.1	<0.1
t(avg) 280 - 315 nm	<0.1	<0.1
Solar UV-B transmission factor	<0.1	<0.1
t(max) 315 - 350 nm	1.5%	1.0%
t(moy) 315 - 380 nm	6.0%	2.0%
Solar UV-A transmission factor	4.0%	1.5%
BLUE LIGHT 380 - 500 nm		
Blue light transmission factor	77.0%	31.0%
TRAFFIC SIGNAL RECOGNITION		
ISO 14889	Pass	
ANSI Z80-3	Pass	
AS 1067.1	Pass	

COATING & TEMPERING
 (See also notes below)

Vacuum coating	YES
Chemical tempering	YES
Air tempering	YES

CHEMICAL DURABILITY (class)

To water	NF ISO 719	HGB2
To acid	DIN 12-116	3
To alkalis	ISO 695	A1



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Note :
 Heat treatments as indicated below, or vacuum coatings, may cause changes in transmission and color properties.

Chemtempering :		Recommended bath and cycle	
Bath :	Potassium Nitrate	59.5%	Time : 16 Hr
	Sodium Nitrate	40.0%	θ °C : 400 °C
	Silicic acid	0.5%	

Air tempering :
 Use standard schedule for photochromic crown glass.

Compatible Bariums :
 This glass has not been designed for fused multifocal production nor heat formed aspheric or progressive lenses.
Heat forming :
 For purpose of manufacturing the above type of lenses, select
Code 80056 PHOTOGRAY 16 FUS

Transmittance properties according to ISO 8980-3

Photochromic response :

Temperature			2 mm thickness
22 °C	Heat faded	Tv (0)	88.0%
	15 mn darkened	Tv (15)	32.0%
	5 mn faded		64.0%
	Night driving conditions ⁽¹⁾		82.0%
5 °C	15 mn darkened	Tv (15)	17.0%
35 °C	15 mn darkened	Tv (15)	47.0%

⁽¹⁾ Reference : ISO 8980-3 Chapter 6.5

Transmission categories :

	2 mm
Faded state	Category 0
Darkened state	Category 2
Night driving ⁽²⁾	Yes

⁽²⁾ Reference : ISO 14889 Chapter 4.5

Properties according to ISO 14889

ISO 14889 Chapter 4.3.1 **Physiological compatibility**

The above glass products are not known to be physiologically incompatible, nor known to create a significant number of allergic reactions, when the lenses made out of these materials are used as intended by the manufacturer

ISO 14889 Chapter 4.3.2 **Flammability**

The above glass products are not flammable, and when tested as described in chapter 5.1 of ISO 14889, there is no continued combustion after withdrawal of the test rod.