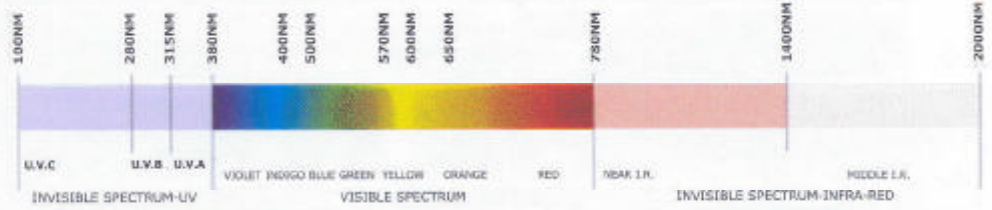


Technical Data



WHY DO WE HAVE TO PROTECT OUR EYES

Prolonged exposure to certain wavelengths leads to eye damage that is often irreversible.



CONSEQUENCES	U.V.C 100 TO 280 NM	U.V.B 280 TO 315 NM	U.V.A 315 TO 400 NM	BLUE LIGHT 380 TO 480 NM	VISIBLE LIGHT 380 TO 780 NM	NEAR I.R. 780 TO 1400 NM	MIDDLE I.R. 1400 TO 2000 NM
CORNEA	CONJUNCTIVITIS PARTIAL BLINDNESS	CATARACT CONJUNCTIVITIS PARTIAL BLINDNESS	CATARACT CONJUNCTIVITIS PARTIAL BLINDNESS				
LENS		PREMATURE AGEING	PREMATURE AGEING			CATARACT	CATARACT PARTIAL BLINDNESS
RETINA				PARTIAL OR TOTAL BLINDNESS	VISION PROBLEMS DISCONTINUOUS VISION	RETINE PIGMENTOSA BLINDNESS	

A. IMPACTS

Risks	PC	(CR39)	Glass	Uses
Mechanical	+++	++	-	Risk Chart p-19-20
Chemical	+	+++	+++	

B. RADIATION

1.Ultraviolet	PC	(CR39)	Glass	Uses
% of UV cut off (380nm)	100%	98%	8%	Electrical work, sources of UV light
Marking (filter code)	2	-	-	

2.Welding	PC	Glass	Marking (grade)	Uses
	Green no5	Green no5	5	Electric welding and gas brazing on heavy metals (flow <40 litres)
Welders	Green no7	-	7	Micro plasma electric welding
Minimizer	Yes	-	-	Alternating between working inside and outside
Welders helpers	Green no 1-7 or 3	Green no 2 or 5	Green no 2 or 5	Intense light in arc welding shops

Technical Data

3. Heat	PC	(CR39)	Glass
Resistance	+	+++	++
Melting temperature	160°C	850°C	780°C

4. Luminosity	Marking (filter)	Availability						Uses
		PC		(CR39)		Glass		
		Fluo	Prescription	Fluo	Prescription	Fluo	Prescription	
Grey A	1,2	yes	yes	yes	yes	-	yes	Comfort shade for interior lighting (neon, etc), protection from sunlight (low intensity)
Green B	1,7	yes	yes	yes	yes	yes	yes	
Grey B	1,7	yes	yes	-	yes	-	yes	
Green C	2,5	yes	-	yes	yes	yes	yes	Comfort shade for solar radiation
Grey C	3,2	yes	yes	-	yes	-	yes	Comfort shade for solar radiation
Mirrored Grey	1,2/2,5	yes	-	-	yes	-	yes	Major reduction of glare and unwanted reflections
Photochromic Grey	1,2/2,5	-	yes	-	yes	yes	yes	Successive movements from strongly lit sectors to dimly lit sectors
Photochromic Brown	1,2/2,5	-	yes	yes	yes	-	yes	Successive movements from strongly lit sectors to dimly lit sectors
Shaded Brown	1,2/2,5	-	yes	yes	yes	-	yes	Successive movements from strongly lit sectors to dimly lit sectors

C. COMFORT

1. Weight	PC	(CR39)	Glass	Uses
Lightness	+++	++	+	Strong corrective lenses
Weight of a pair of lenses	8g	10g	22g	

2. Fog	PC	(CR39)	Glass	Uses
Availability	yes	no	no	Damp atmosphere, air-tight frames and goggle (sweat)

3. Reflections	PC	(CR39)	Glass	Uses
Anti-reflection coating (plano lenses)	no	yes	no	Troublesome lighting and radiation
Anti-reflection coating (corrective lenses)	yes	yes	yes	

Technical Data

A guide to EN166

Key

Any Product

Usually Spectacles

Usually or only Goggles

Goggles or Faceshields

Faceshields Only

Marking for

on Lens

on Frame

Lens Filter Type

1,2,3,4,5 or 6

-

Lens Filter Shade

between 1 & 16

-

Manufacturer

AOS



Optical Class (lens quality)

1 or 2

General Non Specific Use

S

-

Low Energy Impact

F

-F

Medium Energy Impact

B

-B

Dust

4

Fine Dust and Gas

5

Liquid Splash (Chemical)

3

Molten Metal Splash

9

9

High Energy Impact

A

-A

Short Circuit Electric Arc

8

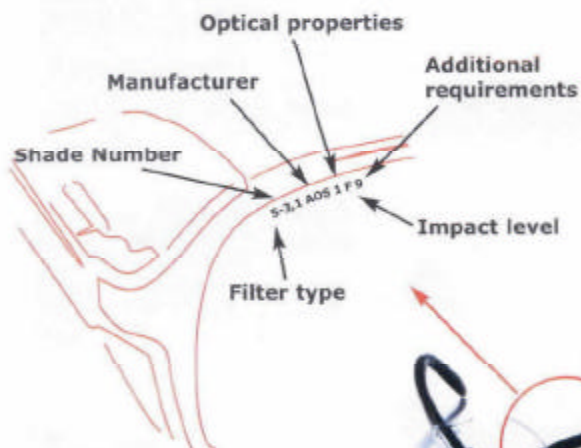
Surface Damage by Fine Particles

K

Resistance to Fogging

N

EN 166 Lens Markings



Lens types and their applications

Polycarbonate

All the Polycarbonate lenses produced by AOSafety absorb Ultraviolet (UV) light. Where the lenses have been tested and approved to EN 170 the lens will be marked 2- or 3- to show that they provide protection from UV. UV light has many industrial uses from crack detection through to curing of many polymer products. These include lacquers and varnishes, dental fillings and resins. High intensity lighting often produces large amounts of UV light as well.

Clear

Clear lensed spectacles are the first line of defence for the eye. Used in most applications to prevent impact from small particles with low energy which are produced in many machining operations. Where greater protection is required from potentially higher energy impacts (free hand grinding or setting up of machines for example) a faceshield or goggle might be used. The AOSafety clear lens also removes a little of the blue end of the visible spectrum (to 400nm) which is considered a hazard by some.



Amber

Amber lenses again provide the UV protection of the polycarbonate lens and may be used where the operator wants the reassurance of a tint to demonstrate that they have protection. The small reduction in visible light may give greater visual comfort. A second use of the Amber filter is to enhance contrast. By removing some of the Blue spectrum the eye has less compromise to make in focusing. Blue light is also subject to greater atmospheric scatter and its removal again enhances contrast in hazy conditions. Contrast enhancement is useful where intense visual concentration is required, for inspection or when target shooting for example.



Indoor/Outdoor

Many employees have to constantly move from high to lower light conditions without time to grow accustomed to the higher intensity, when moving from bright outdoor conditions to indoor warehousing, for example. The 50% light reduction with the Indoor/Outdoor lens gives good protection from Solar UV and visible light, but does not significantly reduce acuity when inside. The AOSafety thin film technology uses reflection in preference to absorption which reduces heat build up to keep the user more comfortable. The rear lens surface reduces annoying reflection.



Neutral Grey

The neutral grey filter is used to protect against the high visible light in sunlight. At the same time UV radiation is reduced to very safe levels. The neutral properties give good colour recognition, essential when driving or operating machinery. This filter may also be useful in other areas where there are high levels of visible light, perhaps when operating or setting up lighting.



MinImIzeR

The AOSafety thin film technology is used here to reduce Infrared (IR) as well as UV and 50% of visible light. This enables it to provide protection for those in areas used for welding applications without seriously reducing their ability to see as would happen with higher shade numbers. It is not intended to be the primary protection from the welding arc, but will help prevent welding flash for those assisting or otherwise working in these areas. It can also be useful when worn under a welding shield to provide impact protection when chipping slag between welding runs.



Poly IR

This is a polycarbonate welding shade but should be considered as an all round lens which reduces UV and IR levels and gives visual comfort by reducing visible light. The polycarbonate brings with it good impact protection. These lenses can be used in any area where impact, UV, IR or visible light hazards exist. They may not be used as primary protection when electric arc welding. Poly IR is available in welding shades 3 and 5.

