

This Lens Colour Reference Guide is provided to help you find the correct lens colour for your application and environment. The filter class, scale number and light transmission values quoted are valid for MSA eyewear meeting or exceeding the requirements of EN166 and where applicable EN 170 / 172.

All MSA lenses filter out 99.9% of UV radiation up to 380 nm wavelength. Several special versions (all light gold mirror, several smoke and 1 clear version) filter 100% UV, up to 400nm and are therefore marked UV400 !

The quality of a UV and sun protection filter is not visible just by looking at the lens. With a pretty tint but poor UV protection harmful radiation can easily get through to the light dilated pupil causing real damage. Real UV protection can only be proved by checking the lens transmission curve.

A transmission curve is a graph in which the actual transmission through a specific lens is plotted against the wavelength. That's why MSA always shows a detailed transmission curve for each tint highlighting the real filter effect by wavelength.

**%T Luminous transmittance** – The ratio of the total transmitted light to the total incident light arriving at a surface; the indicated transmittance is +/- 3%

### Why UV protection is so important ?

- Damage to eye tissue by repeated exposure to UV is additive, incremental and irreversible
- WHO estimates that up to 3 mio people worldwide could become blind from cataracts due to UV exposure annually<sup>1</sup>
- Outdoor workers receive up to 10x more UV load per year
- UV radiation increases with altitude of 1000 m by 30%
- Snow reflects UV up to 80%, sand up to 25%
- Experts recommend UV400 lenses in general to prevent cataract and age-related macular degeneration<sup>2</sup>

### MSA Lens Colour Examples

Not all lens colours are available for all MSA eyewear models. Please see the MSA leaflet.

Please try on different MSA eyewear samples and learn for yourself the differences, functions and benefits of the various lens colours.



Clear (Alaska)



Light Gold Mirror (Alternator)



Amber (Perspecta 010),



Orange (Move)



Smoke (Alaska)



Dark Brown (Perspecta 1900)



Blue Purple (Perspecta 010)



Blue Mirror (Perspecta 9000)



Silver Mirror (ALASKA)



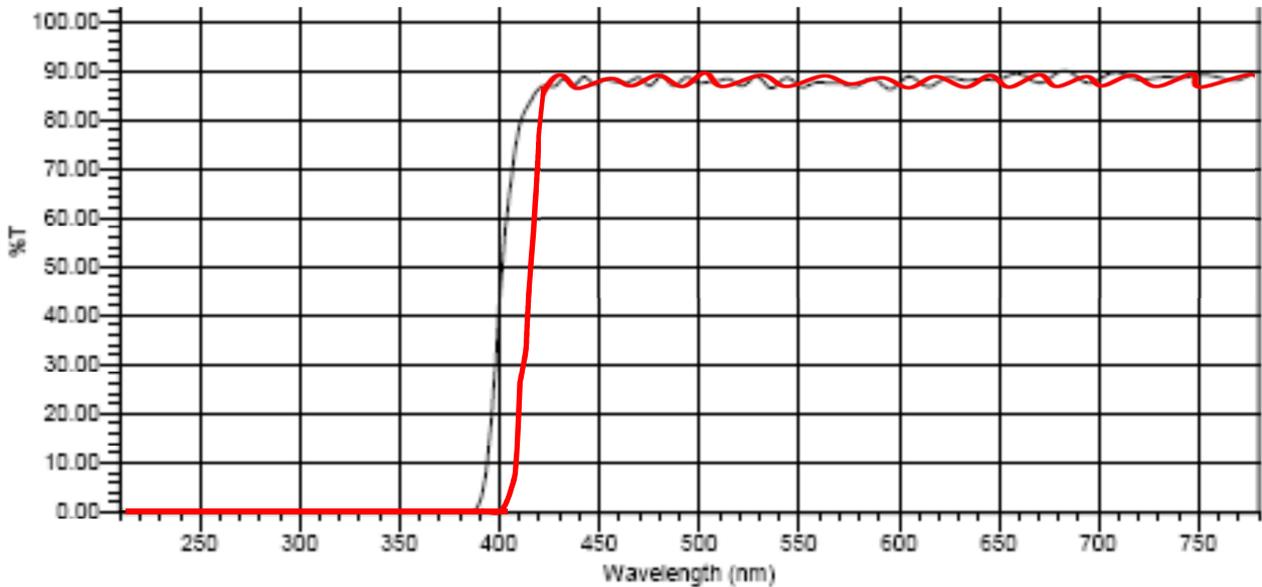
Rainbow (Racers)

<sup>1</sup> <http://www.who.int/uv/publications/proUVrad.pdf> 20.02.2013

<sup>2</sup> [http://www-organik.chemie.uni-wuerzburg.de/fileadmin/08020000/user\\_upload/makula/optimiert.pdf](http://www-organik.chemie.uni-wuerzburg.de/fileadmin/08020000/user_upload/makula/optimiert.pdf) 20.02.2013

### Clear 2C-1.2 ~89% dT Luminous transmittance

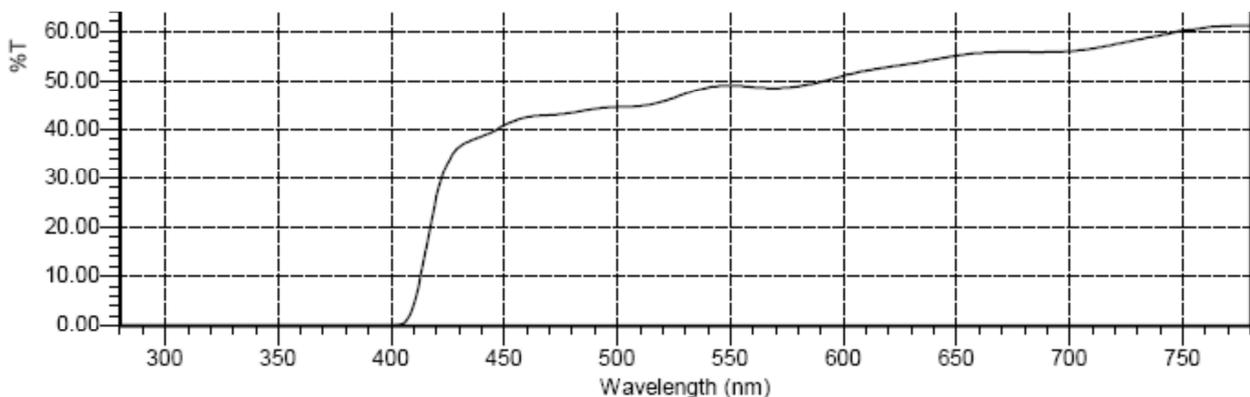
Most popular lens for indoor/general use. It provides maximum visual acuity and maximum colour recognition. The standard clear version protects until 380 nm. The special UV400 Altimeter clear protects 100% until 400nm, see red curve.



### Light Gold Mirror 5-1.7 ~50% dT Luminous transmittance

Sometimes called “Indoor/Outdoor Lens” as it is ideal for applications where working both indoors and outdoors is required, using the same eyewear. The lens tones everything down, reduces glare and bright light providing excellent vision in both indoor and outdoor lighting. It is also the right choice for work places with changing light conditions or driving.

MSA’s eyewear with Light gold mirror lenses offer 100% UV protection to 400nm.

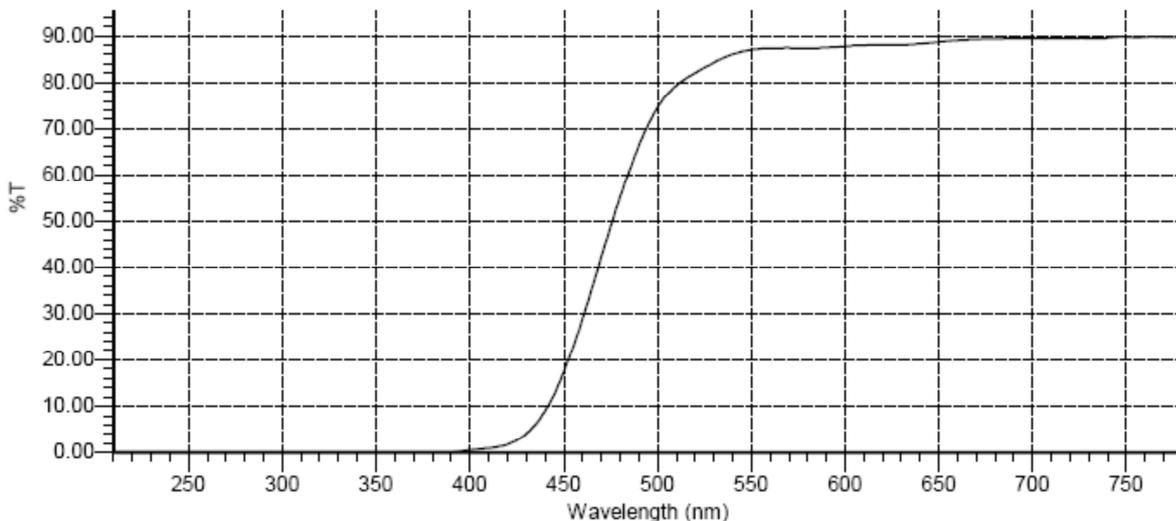


### Amber 2-1.2 ~84% dT Luminous transmittance

Amber increases contrast, depth perception and sharpness which is important e.g. for Quality Inspection as you can see defects better – circuit boards, miniature components, assembly items, etc. It blocks high intensity blue light such as near UV and in curing operations. It filters out hazy light that is hard on the eyes.

Amber lenses are also popular for people working outside at dusk and dawn or on hazy, overcast and foggy days. Visible blue light has a wavelength of about 475 nm. At this wavelength MSA's amber lens have a transmission of just ~40% (compared to clear lens: ~88%)

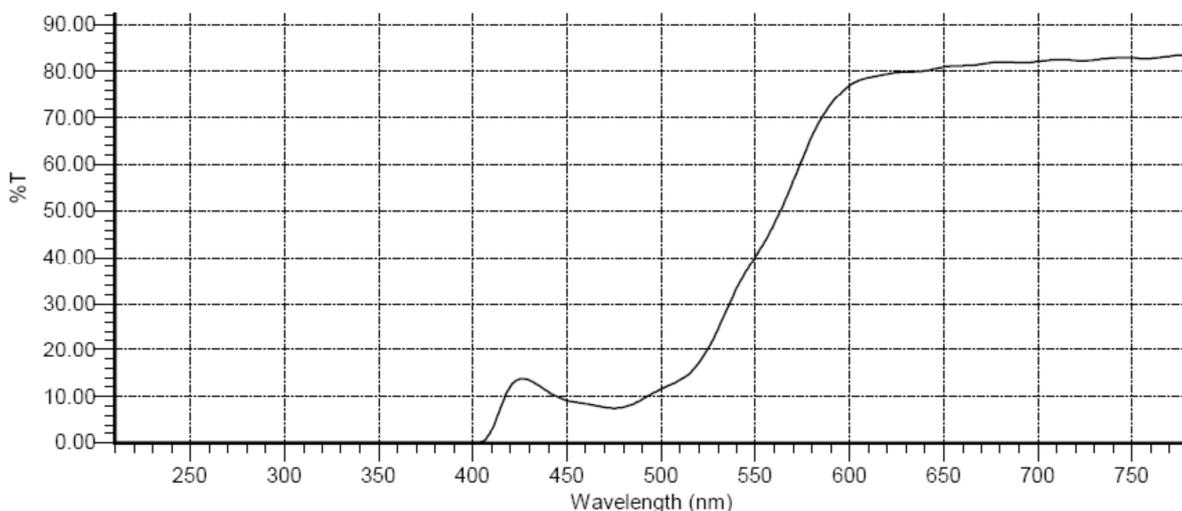
ATTENTION: Within any facility you should check to ensure that no narrowband signal sources are filtered by amber lenses so that signal detection is obscured.



### Orange 2-1.7 ~45% dT Luminous transmittance

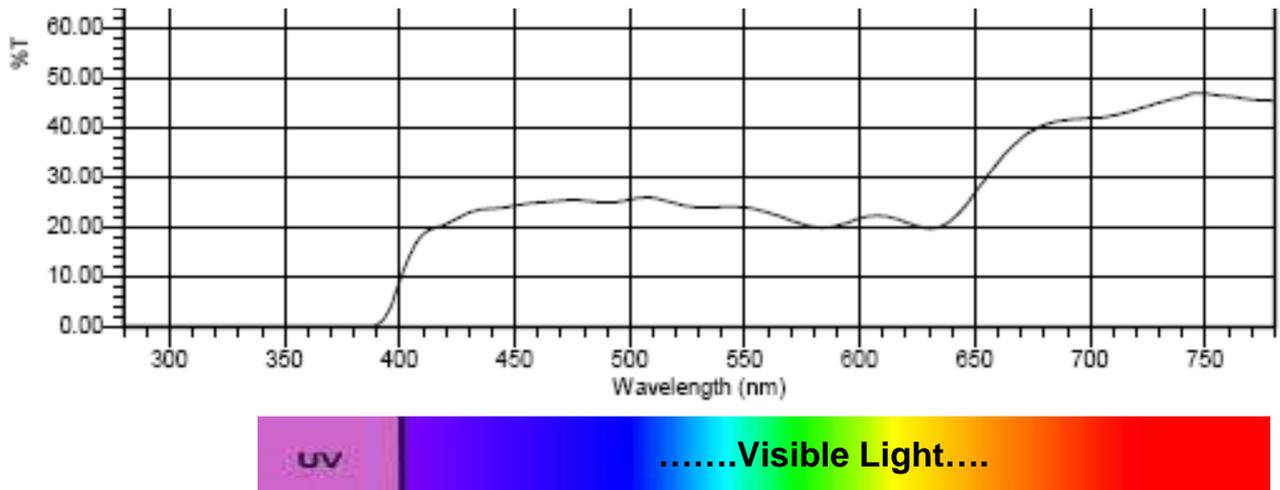
Similar to amber, orange lenses enhance contrast and increase definition. They block blue light making your vision outdoors clearer and increasing visibility on foggy days. At the wavelength 475 nm = Visible blue light MSA orange lens have a transmission of just ~7% (compared to clear lens: ~88,4%, amber ~40%). This means the contrast increase especially out doors is much higher than for amber. Compared to amber the luminous transmittance for orange is lower 45% (amber 84%), making it darker for a certain glare reduction.

Orange is dark enough to block out the sun while still allowing visibility in flat light. The MSA orange spectacle "Move" features a UV400 Premium Filter.



### Smoke 5-2.5 ~21% dT Luminous transmittance

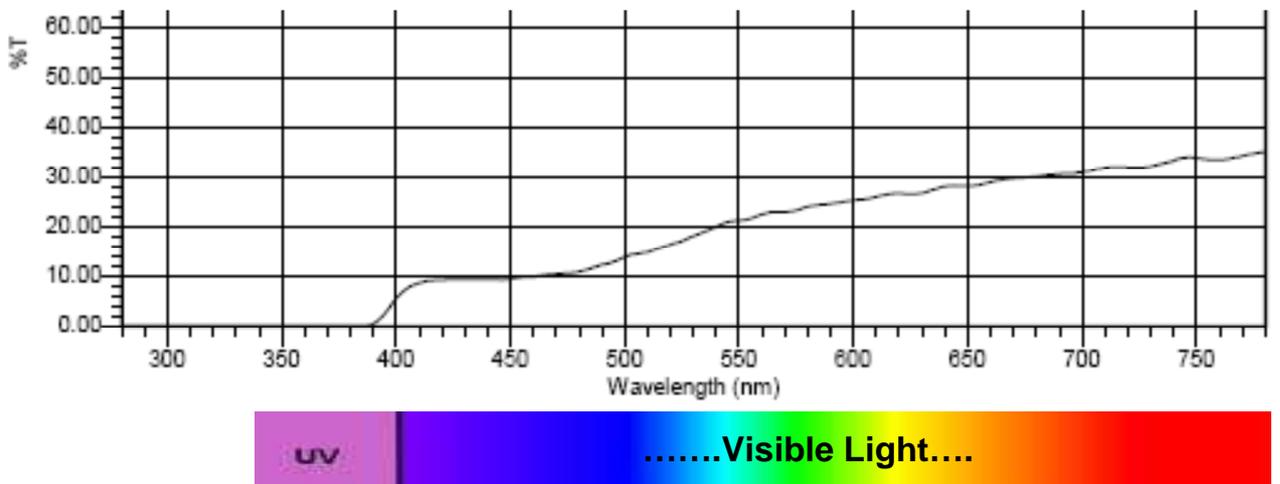
Most popular sun glare filter, protecting from excessive glare and high levels of hazardous visible light and ultraviolet radiation without distorting colour perception. It transmits all colours at the same level. Ideal outdoors on bright days and in bright sunlight, but does not enhance sharpness or contrast. Some MSA models in smoke version offer 100% UV protection to min. 400nm, please ask for the individual transmission curve.



### Dark Brown 5-2.5 ~21% dT Luminous transmittance

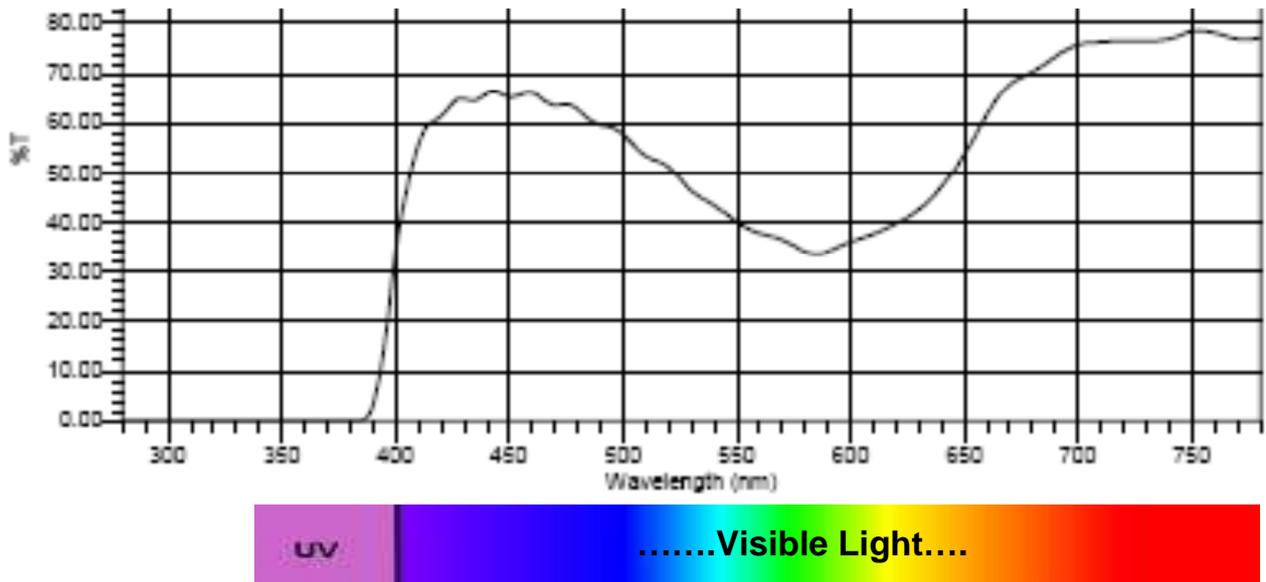
A low light transmission lens that heightens visual acuity and improves colour perception and compliments all light conditions. It enhances perception in changing light and shadow, especially for forest environments. It is a good sun glare filter.

Some MSA models in dark brown version offer 100% UV protection to min. 400nm, please ask for the individual transmission curve.



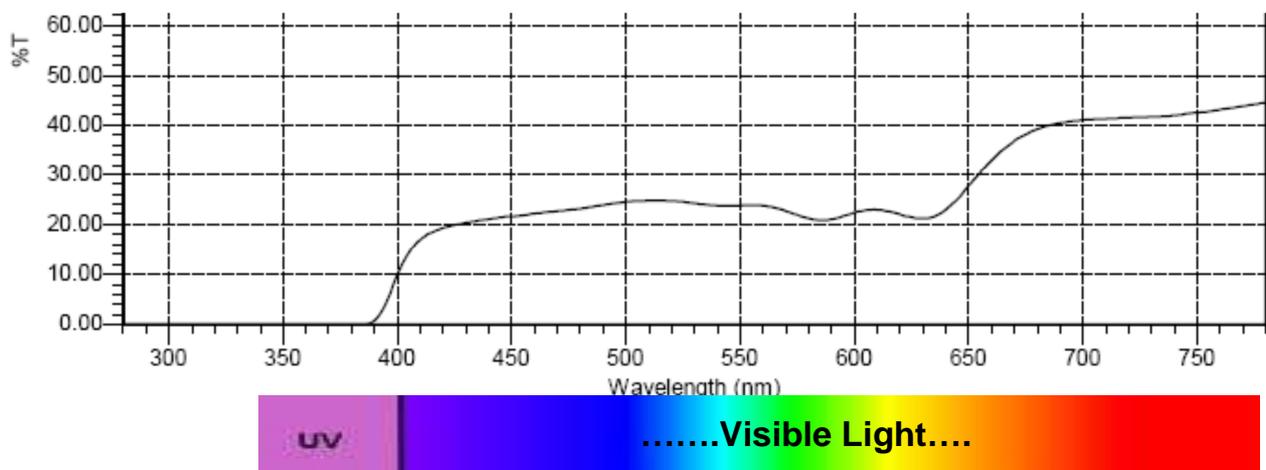
**Blue Purple 5-2 ~40% dT Luminous transmittance**

Blue purple is a combination of grey and orange-red. It enhances the contrast in medium to low light conditions for outdoor activities. It dampens green light and enhances orange clays against background trees for shooting activities.



**Blue Mirror & Silver Mirror 5-2.5 ~21% dT Luminous transmittance**

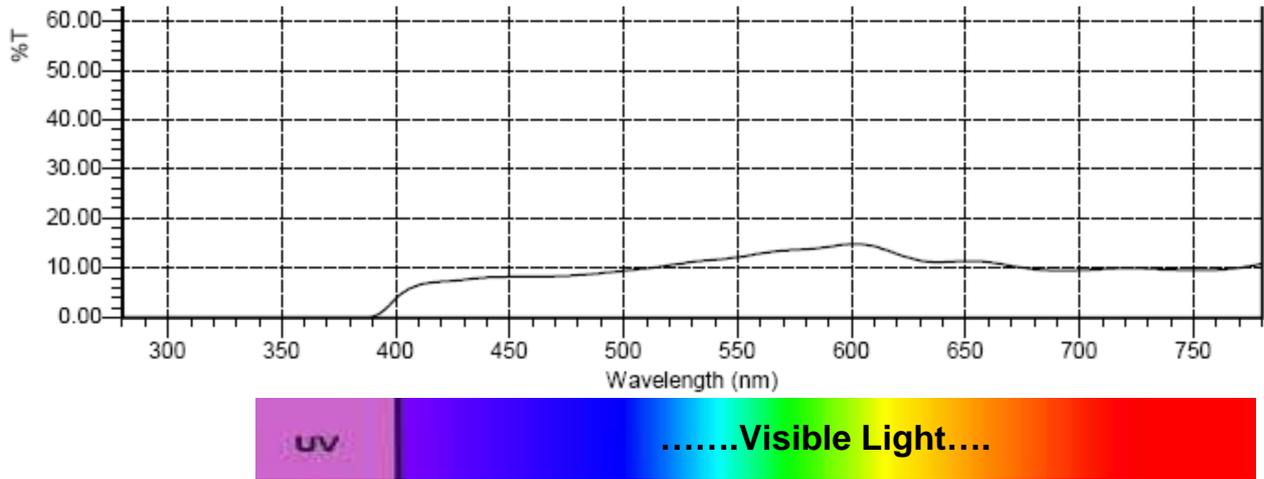
The mirror effect reflects light, reducing the amount that passes through the lens. Both lens colours are modern antiglare filters for outdoor activities. They reduce glare and decrease visible brightness. Good for outdoor applications where a task specific lens is not required. You can still clearly recognise traffic and warning signals as it provides good colour recognition. According to CE EN172, only lens with good colour recognition can be marked as '5-1.1' to '5-3.1'.



**Rainbow Mirror 5-3.1 ~14% dT Luminous transmittance**

Strong and stylish antiglare filter.

ATTENTION: The use of eyewear with filter scale values of 5-3,1 and less is not recommended for driving.



In case of questions please contact your MSA representative or consult us through our website at [www.MSAafety.com](http://www.MSAafety.com) – selecting the appropriate region for the quickest response.

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