

# Instructions for use Rodenstock spectacle lenses

## For opticians

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## Instructions for use Rodenstock spectacle lenses For opticians

**When selling medical products, the adapter, hereinafter referred to as the optician, is obliged to inform the end user, hereinafter referred to as the spectacle wearer, about restrictions of use, preferably in writing.**

Convince with your professional competence by pointing out relevant restrictions of use to your customer during your individual and personal consultation.

You can find important information about Rodenstock lenses at any time at

<https://www.rodenstock.de/de/de/instructions-for-use.html>

### 1 Intended use

#### General information

- Spectacle lenses are used to correct ametropia and eye position errors.
- Spectacle lenses are medical devices of the class 1, have covered from 26 May 2021 by the Regulation (EU) 2017/745 on medical devices and meet the relevant requirements. The proof of conformity is based in some criteria on compliance with the standard EN ISO 14889 "Ophthalmic optics - Spectacle lenses - Fundamental requirements for uncut finished lenses" and the applicable standards of the EN ISO 8980 series.  
All lenses in the Rodenstock product catalogue are tested according to EN ISO 14889:2013 + A1:2017 and EN ISO 8980-1:2017, 8980-2:2017, 8980-3:2013 and 8980-4:2006 and are marked with the CE mark on the lens bag.
- With respect to EN ISO 7944:1998 "Optics and optical instruments – Reference wavelengths" both the refractive index and the data for the dioptric powers of the spectacle lenses refer to the e-line of mercury (546.07nm).
- In order to ensure proper and professional ophthalmic optical care, reference is made to the applicable national guidelines for ophthalmic optics and optometry, e.g. the working and quality guidelines for ophthalmic optics and optometry of the ZVA (Germany) and the ECOO guidelines for optometric and optical services in Europe.
- Spectacle lenses are designed for everyday use in normal environmental conditions (temperature and humidity), but not for extreme conditions such as in a sauna or in a car parked in the sun.
- Spectacle lenses are intended for use in pairs in a spectacle frame, i.e. as a combination of right and left lenses in front of the eyes of the wearer.
- Spectacle lenses are usually not worn in combination with contact lenses if they already correct the same customer-specific vision problem.
- Spectacle lenses are calculated so that the ambient medium on the eye and object side is air ( $n=1.0$ ). For best vision under water, e.g. when swimming or diving, the refraction data must be converted.
- In order to obtain a driving licence, there are minimum requirements for visual acuity, which must be achieved with or without a visual aids (glasses or contact lenses) by means of an official driving licence vision test. In case of reasonable doubt, the applicant shall be examined by an additional medical authority. If a visual aid is required to pass the eye test, this will be noted on the driving licence.  
The applicable minimum requirements may vary depending on the country. If necessary, please enquire about the locally applicable requirements.

#### Materials of spectacle lenses

- Lenses are available in different materials and refractive indices.
- The higher the refractive index, the thinner the lens can be and the lighter the lenses.
- At the same time, the lower the refractive index, the lower the dispersion (higher Abbe number) in a prescription lens and thus also the "colour fringing" that is perceived as disturbing when peripheral vision at the edge of the spectacles is concerned. This effect is particularly visible with high optical power.
- Rodenstock plastic lenses are available in the refractive indices 1.50, 1.53 (Trivex), 1.59 (Polycarbonate), 1.60, 1.67 and 1.74.
- For the refractive indices 1.54, 1.60 and 1.67, self-tinting lenses made of plastic are available, in which the UV radiation of sunlight triggers a self-tinting effect.
- The PRO410 material in the indices 1.60 and 1.67 has a light protection that goes beyond conventional UV protection, partially filtering out potentially harmful short-wave light in the visible range of the spectrum so that it cannot damage the retina.
- Ophthalmic lenses made of mineral glass have a correspondingly higher weight than comparable plastic lenses due to the higher density of the material.
- Mineral glasses are offered in the indices 1.52, 1.60, 1.70, 1.80 and 1.90.
- Colormatic products in mineral glass are also available for the refractive indices 1.52 and 1.60.
- The satisfaction guarantee for Rodenstock spectacle lenses is only valid for the described intended use and with proper application.

#### Refinements of spectacle lenses

- A large portfolio of different tintings is available on plastic lenses. In addition to the UV protection in the material, UV radiation or short-wave light can be reduced. The most common use is dark tinted lenses as sun protection. Lighter tints are mainly used for fashion aspects.
- Plastic lenses are mainly offered with hard coatings to ensure good scratch resistance in daily use.
- The vast majority of lenses are coated with an anti-reflective coating to reduce the reflections of both surfaces.
- Alternatively, sun protection lenses can be coated with a mirror finish, which looks chic.
- Many coatings are finished with a water and grease-repellent topcoat and thus allow easy cleaning of the lenses.
- Most available coatings include a combination of hardcoat, anti-reflective and topcoat.

#### Suitability for road use or night driving:

- A lens is considered to be roadworthy if it is suitable for road use and driving in accordance with EN ISO 14889 and 8980-3:2013 or 12312-1:2013.
- A lens is considered to be fit for night driving if it is suitable for road use and driving in twilight or at night in accordance with EN ISO 14889 and 8980-3:2013 or 12312-1:2013.

#### Notes on Rodenstock sun protection lenses

- Rodenstock spectacle lenses are primarily intended for the manufacture of prescription spectacles and meet the requirements of Regulation (EU) 2017/745 and the EN ISO 14889 standard, which also includes tinted prescription lenses.
- If two afocal (plano power) lenses are used for the production of sunglasses, the requirements of Regulation (EU) 2016/425 and EN ISO 12312-1 must be observed. When grinding in afocal sun protection lenses, EN ISO 12312-1, section 11 "Protective requirements" must be observed. Rodenstock spectacle lenses meet the relevant requirements.

- Information for spectacle wearers such as the filter category and, if applicable, self-tinting or polarising properties of the lenses can be found in the Rodenstock product catalogue. The description of the filter categories, their values for light transmission and their recommended use can be found in the following table.

Filter category Luminance transmittance	Descriptive label	Usage
0 81 – 100 %	Light tint sunglasses	Very limited reduction of sunglare
1 44 – 80 %		Limited protection against sunglare
2 19 – 43 %	General purpose sunglasses	Good protection against sunglare
3 9 – 18 %		High protection against sunglare
4 3 – 8 %	Very dark special purpose sunglasses, very high sunglare reduction	Very high protection against extreme sunglare, e.g. at sea, over snowfields, on high mountains, or in desert Not suitable for road use and driving

#### Transport and storage conditions of uncut finished lenses

- The following climatic conditions must be observed when storing raw-edged lenses for longer periods of time until further processing: Temperatures of 10 to 25 °C and a relative humidity of less than 60 %.
- When transporting the lenses and storing them for a short period of time, climatic conditions similar to those typically encountered when wearing spectacles in everyday life are permissible, see chapter 1.1 General information.

## 2 Restrictions of use & foreseeable misuse

#### General information

- Spectacle lenses are not suitable as eye protection against mechanical hazards such as impacts and flying sparks.
- Since the refraction data of the wearer of spectacle lenses can change, it is recommended to check the refraction data at regular intervals.
- Due to the lens geometry, limited optically effective diameters are possible for higher myopia.
- Spectacle lenses are basically suitable for driving vehicles and operating machines. Differing properties are specified in the Rodenstock product catalogue.
- A lens is considered to be roadworthy if it is suitable for road use and driving in accordance with EN ISO 14889 and 8980-3:2013 or 12312-1:2013.
- A lens is considered to be fit for night driving if it is suitable for road use and driving in twilight or at night in accordance with EN ISO 14889 and 8980-3:2013 or 12312-1:2013.
- Near comfort lenses and lenses used in reading glasses are not roadworthy.
- Many tintings are not roadworthy, see tabular listing in the colour overview (see appendix).
- For all special designs on customer request that are not included in the Rodenstock product catalogue, it must be assumed that they are not suitable for road use and driving.

#### Restrictions on the use of tinted lenses

- Tinted lenses are not suitable for direct observation of the sun
- Tinted lenses are not suitable for protection against artificial light sources, e.g. solaria.

- Lenses of filter category 1 - 3 and self-tinting lenses with light transmission values of less than 75% are not suitable for driving in twilight or at night.
- Lenses of filter category 4 are not suitable for driving and road use.
- Tintings with certain spectral properties are not suitable for driving and road use according to EN ISO 14889 and 8980-3:2013 or 12312-1:2013. In the appendix you will find a detailed colour overview with markings of tintings that are not suitable for night driving or not roadworthy.
- For special colours (order codes ending in 00) and colours according to samples (order codes ending in 99) it cannot be guaranteed that they meet the requirements of roadworthiness.
- No contrast-enhancing effect can be guaranteed with SunContrast special colours or colours according to samples (C00 / C99).

#### **Additional usage instructions for self-tinting corrective sunglasses**

- With self-tinting sunglasses, the light transmission values depend on the ambient temperature, UV radiation and other influences. Our self-tinting lenses are tested in the laboratory under standard conditions. Under everyday environmental conditions (above 10°C with normal sunlight) they are suitable for driving and road use. At low temperatures or in particularly strong sunlight, reduced values for light transmission according to filter category 4 may occur, although this category cannot be guaranteed in every case. At high temperatures or with reduced solar radiation, correspondingly higher values for light transmission can result.
- ColorMatic IQ 2 and ColorMatic 3 plastic lenses are suitable for night driving according to EN ISO 14889 and 8980-3:2013 or 12312-1:2013.
- ColorMatic IQ 2 Sun and ColorMatic 3 Sun lenses are not suitable for night driving.
- Real values of the respective ColorMatic IQ 2 and ColorMatic 3 lens are determined indoors (faded) or darkened at 20 °C in the midday sun.
- The laboratory values are measured according to EN ISO 8980-3:2013 or 12311:2013.
- ColorMatic mineral lenses are not unrestricted suitable for night driving according to EN ISO 14889 and 8980-3:2013 or 12312-1:2013. The main reason for this restrictions are the materialdepending slower lightening process for mineral lenses compared to modern plastic lenses. The following restriction apply: ColorMatic mineral lenses without anti-reflective coating with center thickness larger than approx. 4 mm (ColorMatic 1.60 grey: 6 mm) are not suitable for night driving. ColorMatic mineral lenses with anti-reflective coating are not suitable for night driving with center thickness larger than approx. 6 mm (ColorMatic 1.60 grey: 7 mm). Depending on the centre thickness, they belong to category 0 or 1.
- In the case of self-tinting lenses, the classification is additionally dependent on the degree of darkening.
- Due to the way the self-tinting lenses work when darkened by the sun's UV light, the darkening process is very fast, whereas the lightening process is slow, especially at low temperatures. This is particularly important when the wearer of glasses changes from bright sunlit areas to shaded or dark areas. Lenses that are still dark can lead to impaired vision in dark areas. If possible, the glasses must be removed in these areas for better vision, or in the case of high levels of ametropia, colourless replacement glasses must be used until the fading has taken place.  
This effect does not occur when driving a closed car (not a convertible), as the windows in a motor vehicle are largely UV-nontransparent.
- The points mentioned for restrictions of use and foreseeable misuse are only examples and do not claim to be complete. Reference is made to the contents of the chapter "Intended use".

### 3 Correct use

#### Refraction & Centring

- The basis for an optimal correction is the distance refraction and the near refraction, which for presbyopic spectacle wearers is adjusted to the reading distance of the spectacle wearer. If a trial frame is used to determine the lens, they should have a forward tilt of  $0^\circ$ . Due to the finite distance in the refractive space, it is recommended to perform a remote adjustment when looking at infinity.
- If the optician provides the frame and centring data, Rodenstock determines the best suitable pre-decentration for some lenses with regard to the lens geometry. More detailed information can be found in the Rodenstock product catalogue.
- Spectacle lenses must be centred in front of the eye of the wearer in such a way that the respective valid fitting requirement of the lens is met.
- The lenses must be fitted according to the specified centring specifications and the resulting spectacles must correspond to the transmitted order parameters, so that the respective design layouts and calculations are optimally applied.
- With high values for face form angle and pantoscopic tilt, the centring data required for grinding in may deviate from the measured values for pupil distance/height of the spectacle wearer. Therefore, special attention must be paid here to ensure that the centring data of the finished spectacles correspond to the spectacle wearer's viewing points.
- The lens bag contains information that facilitates exact centring for the respective lens, e.g. centring correction for prismatic orders and final centring data for the frame plane  $\overset{\text{eye}}{\curvearrowright}Z$  and  $Y\overset{\text{eye}}{\curvearrowright}$  if frame and centration data is given.
- When ordering prismatic spectacle lenses, Rodenstock assumes as standard for the Rodenstock products that the prismatic values ordered have been determined according to pupil centre centration (PCC case). In this case the trial lenses/phoropter is not adjusted during refraction. The prism actually effective in front of the eye results from the prismatic trial lens and the resulting prismatic effect of the spherical/toric trial lens. This corresponds to the resulting prism in the WinFit ordering tool.
- For prismatic refraction data of multifocal and Manufacture lenses, it is assumed that the refraction was done according to the formula case. The ordered prismatic values are implemented in the lens according to the order values. If desired, the prismatic values can also be calculated for the refraction according to pupil centre centration. To determine the centration data, the optician must adjust the measured values for pupil distance and height according to the centration correction resulting from the rule of thumb (0.30 mm per 1cm/m against the base position of the correction prism) for Standard lenses.
- For B.I.G. Exact und B.I.G. Norm lenses, no centring correction is required, since for these products, already during the online optimisation of the lens, the back surface is shifted in horizontal and/or vertical direction in such a way that decentration is no longer necessary for grinding. These lenses shall be centred according to the centring data  $\overset{\text{eye}}{\curvearrowright}Z$  and  $Y\overset{\text{eye}}{\curvearrowright}$  on the lens bag (when the frame and centring data is given).
- For further information, please refer to the current Rodenstock product catalogue or the Rodenstock Tips & Technology.
- The majority of lenses are provided with permanent markings (engravings). These serve to identify the manufacturer and, in some cases, also the type of lens and are generally only visible when the lens is held against the light at a light-dark edge.
- Lenses are stamped in most cases. These stamps are used to clarify the reference points in the lens, to check the power (measured vs. verification / ordered power) and for correct centring by the optician. After checking the power and centering, the stamp on the lens must be removed.

- Spectacle lenses are packed in a lens bag for delivery to the optician. This bag is provided with a label which contains the data relevant for a medical device, such as the manufacturer's address and CE mark, as well as order-related information on order and reference values and centring information. The explanation of the contents and pictograms used as well as further information can be found in the Rodenstock Tips & Technology Lenses.

#### Grinding notes

- The grinding and processing of the lenses must be carried out according to the state of the art by the respective specialist companies, such as opticians and grinding workshops. At this point, reference is made to the relevant technical literature and to the use of suitable filter systems for waste water in order to avoid environmental pollution.
- When grinding in, always make sure that respirable fine dust is avoided by wet grinding or sufficient suction devices. If necessary, personal protective equipment for laboratory work must be worn (safety goggles, mouth/nose protection, lab coat). Particularly with highly refractive plastic materials (from index 1.60 on), unpleasant odours are produced during grinding, which can best be counteracted by suction.
- Any subsequent processing of the delivered spectacle lens, such as tinting, mirroring or anti-reflection treatment, which goes beyond the usual edge processing, is done at the customer's own responsibility and excludes any liability on the part of Rodenstock.

#### Custom-made products

- All custom-made products, such as all products of the Manufaktur and lens geometry orders outside the approved geometry range, are, due to their nature as individual production, which are not manufactured in the sense of series production, to be classified as custom-made products in the sense of Regulation EU 2017/745 (MDR). In this case, custom-made products are manufactured in accordance with the specifications of the regulation by the optician / ophthalmologist and the current state of science and technology and meet the basic safety requirements according to Annex I MDR and the applicable standard EN ISO 14889 (*Ophthalmic optics - Spectacle lenses - Fundamental requirements for uncut finished lenses*) as far as possible. Deviations and possibly even restrictions of the permitted use are indicated by Rodenstock together with the necessary manufacturer documentation (see Annex XIII MDR). Any risks arising from this are to be weighed up by the issuer of the prescription (optician / ophthalmologist) against the benefit for the wearer of the glasses and documented in the customer file.

#### Modifications of products

In order to adapt spectacle lenses individually to the customer's needs, there are a number of order parameters (such as inset reduction, base curve request, adjustments of thickness reduction prisms or prisms etc...), which can change the performance of the lenses. This also includes the combination of different lens types in one pair of glasses. The use of these parameters, as well as the responsibility of an individual risk-benefit assessment tailored to the customer, is the responsibility of the user/optician. The intended use and the possible modifications of the products can be found in the instructions for use of the respective products and in the Rodenstock product catalogue.

#### Individual production or lens order according to sample

- Single and repeat orders of lenses are generally possible. Please note that e.g. base curves, thickness reduction prism, colours and anti-reflection coatings cannot be matched to each other. When ordering, it is therefore advisable to specify the value of the counter-lens so that these can be matched to each other when calculating the base curves and thickness reduction prism.

- Compensating lenses do not meet the optical requirements of prescription lenses.
- White lenses with anti-reflective coating: Replacement of a single lens is possible. Depending on age, variations in the reflective colour must be tolerated.
- Coloured plastic lenses or self-tinted mineral and plastic lenses: Production is only possible in pairs. For individual orders, significant colour deviations must be accepted.
- Individual production of ColorMatic IQ 2 Sun or ColorMatic 3 Sun lenses is generally not possible.
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#### Care instructions

- Even though all spectacle lenses with premium coatings from Rodenstock are basically finished in such a way that they can be cleaned with a standard microfibre cloth, Rodenstock recommends cleaning the lenses under lukewarm running water with a pH-neutral cleaning agent, a diluted dishwashing detergent that does not have any refatting properties or a solvent-free spectacle care product. Spectacle lenses must not be cleaned with harsh household cleaners, solvent-containing liquids, organic solvents (acetone etc.), acids or alkaline solutions. For drying, Rodenstock recommends a clean, fine-fibred microfibre or cotton cloth.
- Spectacle lenses should never be placed on the front of the lenses.
- A sturdy spectacle case is best suited for storage.
- Glasses should be protected from exceptionally high temperatures, such as those that can occur in a sauna or in a car parked in the sun.
- Depending on the manufacturing process, spectacle lenses that are given a temporary "anti-fog" property on the surface as required must be cleaned carefully and, if necessary, re-prepared with a special cloth or spray. The manufacturer's instructions must be followed without fail.

#### Rodenstock trademark

- Each (right) Rodenstock brand lens is provided with the visible Rodenstock trademark on the upper outer edge of the lens when the frame and centering data are specified. The Rodenstock brand engraving is a promise of quality. It guarantees the authenticity of your high-end precision spectacle lens from Rodenstock and offers you the security and comprehensive service of the Rodenstock brand.



*Visible Rodenstock trademark*



#### **4 Risks & side effects**

- Influencing factors such as high blood pressure, diabetes, pregnancy, change of medication, etc. can lead to the lens no longer being optimally adjusted to the wearer of the glasses. In these cases, asthenoptical complaints such as blurred vision, headaches, rapid fatigue and general malaise, reddening, pain and tears, occasional double vision, dizziness, feeling of heaviness in the eyelids may occur.
- Lenses with a centre thickness minimisation are delivered with sharp edges if necessary, there is a danger of cuts.
- With sharp-edged plus lenses or if the lens breaks during processing, there is an additional risk of cuts at sharp edges. The use of gloves (but do not use them when working with rotating tools - risk of accidents) helps here.
- Depending on the Abbe number of the lens material used, dispersion may cause disturbing colour fringes. The higher the refractive index, the thinner the lens can be and the lighter the glasses. At the same time, the lower the refractive index, the lower the dispersion in a prescription lens and thus the "colour fringes" at the edge of the spectacles, which are perceived as annoying.
- Plastic spectacle lenses are more break-proof than mineral spectacle lenses. Under unfavourable circumstances, plastic lenses can nevertheless break.
- Polarising lenses can cause problems with the readability of displays such as navigation systems, screens and head-up displays and therefore cannot be used without restrictions, e.g. for driving a car.
- The materials and layers of Rodenstock spectacle lenses have been tested for their toxic and allergenic properties and are classified as harmless for proper use according to EN ISO 14889. No allergenic materials are used in plastic spectacle lenses. However, in exceptional cases, special incompatibilities can lead to allergic reactions. The wearer of the glasses should clarify this with his family doctor and in doubt provide the manufacturer with these informations.
- For spectacle wearers with intraocular lenses (IOL) who are to be fitted with B.I.G. EXACT lenses, measurements on the DNEye scanner may or may not be successful depending on the IOL type. The optician can try a measurement with the DNEye scanner, but must then critically assess the course and the result of the respective individual measurements with his competence.

#### **5 Disposal**

- Spectacle lenses must be disposed of in the residual waste.  
Intact spectacles can also be donated to charitable organisations, which will then distribute them to people in need of vision care worldwide.
- Dirty water and grinding residues resulting from the grinding of optical lenses must be disposed of properly (see instructions of the grinding machine manufacturers).

For further information see also instructions for use of the respective Rodenstock product category.

#### **Contact**

Rodenstock GmbH  
Eisenheimerstraße 33  
80687 Munich  
[www.rodenstock.com](http://www.rodenstock.com)

## 6 Annex

### Material overview and colour overview

#### Material overview

Material overview Plastic	Index	Abbe-Number	Density	UV-Protection* up to	must be coated
	$n_e$	$\mu_e$	$g/cm^3$	nm	
1.74	1,737	32,5	1,47	400	✓
1.67	1,669	30,7	1,37	400	✓
PRO410 1.67	1,668	31,3	1,36	410***	✓
ColorMatic 3 1.67	1,663	30,7	1,37	400	✓
1.60	1,598	38,2	1,30	400	✓
PRO410 1.60	1,598	40,1	1,30	410***	✓
ColorMatic 3 / Sun 1.60	1,598	38,2	1,30	400	✓
ColorMatic 3 1.60 stock	1,598	40,5	1,29	400	✓
Polarized 1.60	1,60	42,0	1,30	400**	✓
Polycarbonat 1.59	1,591	29,8	1,20	385	✓
ColorMatic 3 1.54	1,539	43,4	1,20	400	✓
ColorMatic IQ 2 1.54	1,540	43,0	1,19	400	✓
Trivex 1.53	1,530	45,0	1,11	400	✓
1.50	1,500	58,0	1,31	400****	
Polarized 1.50	1,50	58,0	1,32	400	

\* UV-Protection for all available center thicknesses

\*\* Polarized Grey and Green up to 380nm

\*\*\* Protection against potentially harmful high-energy blue light

\*\*\*\* UV-Protection only 350 nm for following products: Multifocal, Manufacture, Perfalt 1.50 Balance Stockline, Progressiv Pure Life

Material overview Mineral	Index	Abbe-Number	Density	UV-Protection* up to	must be coated
	$n_e$	$\mu_e$	$g/cm^3$	nm	
1.90	1,893	30,4	4,02	330	✓
1.80	1,807	34,8	3,60	330	✓
1.70	1,707	39,2	3,21	330	✓
1.60	1,604	43,8	2,67	330	
Colormatic 1.60	1,604	42,8	2,75	350	
1.50	1,525	58,3	2,55	330	
Colormatic 1.50	1,525	56,7	2,41	350	

\* UV-Protection for all available center thicknesses

UV protection is defined in the standards for spectacle lenses up to a wavelength of 380 nm. All lenses in the Rodenstock product catalogue meet these standards requirements. More extensive protection against visible radiation such as the frequent term "UV400" is not standardised. In order to describe the spectral transmission of spectacle lenses in the UV and near UV visible range, the definitions in EN ISO 8980-3 and 12312-1 have been extended accordingly to wavelengths greater or smaller than 380 nm. The information on UV protection in the material and colour overview thus enables a comparison of different materials and finishes with each other. However, an exact comparison with similar data from other manufacturers is not meaningful.

## Colour overview

Plastic	Absorption (Category)	EDP	UV 400			UV 380 <sup>1</sup>	UV 350 <sup>1</sup>	Restriction of use			
			1.50	1.60	1.67	1.50	1.50	none	Not suitable for night driving	Not roadworthy	
Lambda Lens Technology	<b>Lower Contrast</b>										
	Steel Blue	12% (0)	SB1	✓	✓	✓		✓	•		
		20% (1)	SB2	✓	✓	✓		✓	•		
		65% (2)	SB6	✓	✓	✓	✓			•	
		75% (2)	SB7	✓	✓	✓	✓			•	
		85% (3)	SB8	✓	✓	✓	✓			•	
		90% (3)	SB9	✓	✓	✓	✓			•	
		25-10% (1-0) <sup>2</sup>	2SB	✓	✓	✓		✓	•		
		75-10% (2-0) <sup>2</sup>	7SB	✓	✓	✓		✓		•	
		85-40% (3-1) <sup>2</sup>	8SB	✓	✓	✓		✓		•	
		90-50% (3-1) <sup>2</sup>	9SB	✓	✓	✓	✓			•	
	Granit Grey	75% (2)	GG7	✓	✓	✓	✓			•	
		85% (3)	GG8	✓	✓	✓	✓			•	
		90% (3)	GG9	✓	✓	✓	✓			•	
	Smoky Grey	12% (0)	SG1	✓	✓	✓		✓	•		
		20% (1)	SG2	✓	✓	✓		✓	•		
		65% (2)	SG6	✓	✓	✓	✓			•	
		75% (2)	SG7	✓	✓	✓	✓			•	
		85% (3)	SG8	✓	✓	✓	✓			•	
		90% (3)	SG9	✓	✓	✓	✓			•	
		25-10% (1-0) <sup>2</sup>	2SG	✓	✓	✓		✓	•		
75-10% (2-0) <sup>2</sup>		7SG	✓	✓	✓		✓		•		
85-40% (3-1) <sup>2</sup>		8SG	✓	✓	✓		✓		•		
90-50% (3-1) <sup>2</sup>		9SG	✓	✓	✓	✓			•		
Lambda Lens Technology	<b>Mid Contrast</b>										
	Pilot Green	12% (0)	PG1	✓	✓	✓		✓	•		
		20% (1)	PG2	✓	✓	✓		✓	•		
		65% (2)	PG6	✓	✓	✓	✓			•	
		75% (2)	PG7	✓	✓	✓	✓			•	
		85% (3)	PG8	✓	✓	✓	✓			•	
		90% (3)	PG9	✓	✓	✓	✓			•	
		25-10% (1-0) <sup>2</sup>	2PG	✓	✓	✓		✓	•		
		75-10% (2-0) <sup>2</sup>	7PG	✓	✓	✓		✓		•	
		85-40% (3-1) <sup>2</sup>	8PG	✓	✓	✓		✓		•	
		90-50% (3-1) <sup>2</sup>	9PG	✓	✓	✓	✓			•	
	Autumn Green	75% (2)	AG7	✓	✓	✓	✓			•	
		85% (3)	AG8	✓	✓	✓	✓			•	
		90% (3)	AG9	✓	✓	✓	✓			•	
	Dusty Green	75% (2)	DG7	✓	✓	✓	✓			•	
		85% (3)	DG8	✓	✓	✓	✓			•	
		90% (3)	DG9	✓	✓	✓	✓			•	•

✓ Not available with Duralux or with Solitaire Back

✓ Available with coating

<sup>1</sup> UV-Protection only 350 nm / 380 nm for following products: Multifocal, Manufacture, Perfallit 1.50 Balance Stockline. All other lenses offer UV protection of 400 nm in index 1.50.

<sup>2</sup> For toric lenses please indicate the axial position.

### Note:

UV protection and restrictions of use can be found in the information for use, which Rodenstock provides under the following link:  
<https://www.rodenstock.de/de/de/instructions-for-use.html>

For special colours and colours by sample it cannot be guaranteed that they meet the requirements of suitability for night driving, suitability for road use or contrast enhancement

## Colour overview

Plastic	Absorption (Category)	EDP	UV 400			UV 380 <sup>1</sup>	UV 350 <sup>1</sup>	Restriction of use			
			1.50	1.60	1.67	1.50	1.50	none	Not suitable for night driving	Not roadworthy	
Lambda Lens Technology	Higher Contrast										
	Olive Brown	75% (2)	OB7	✓	✓	✓	✓			•	
		85% (3)	OB8	✓	✓	✓	✓			•	
		90% (3)	OB9	✓	✓	✓	✓			•	
	Chestnut Brown	12% (0)	CB1	✓	✓	✓		✓	•		
		20% (1)	CB2	✓	✓	✓		✓	•		
		65% (2)	CB6	✓	✓	✓	✓			•	
		75% (2)	CB7	✓	✓	✓	✓			•	
		85% (3)	CB8	✓	✓	✓	✓			•	
		90% (3)	CB9	✓	✓	✓	✓			•	
		25-10% (1-0) <sup>2</sup>	2CB	✓	✓	✓		✓	•		
		75-10% (2-0) <sup>2</sup>	7CB	✓	✓	✓		✓		•	
		85-40% (3-1) <sup>2</sup>	8CB	✓	✓	✓		✓		•	
		90-50% (3-1) <sup>2</sup>	9PG	✓	✓	✓	✓			•	
	Golden Brown	75% (2)	GB7	✓	✓	✓	✓			•	
		85% (3)	GB8	✓	✓	✓	✓			•	• <sup>4</sup>
		90% (3)	GB9	✓	✓	✓	✓			•	•
	Honey Amber	75% (2)	HA7	✓	✓	✓	✓			•	•
	85% (3)	HA8	✓	✓	✓	✓			•	•	
	90% (3)	HA9	✓	✓	✓	✓			•	•	
Lambda Lens Technology	Ultimate Contrast										
	Dynamic Yellow	15% (0)	DY1	✓	✓	✓	✓		•		
	Dynamic Orange	40% (1)	DO4	✓	✓	✓	✓			•	•
	Dynamic Red	80% (2)	DR8	✓	✓	✓	✓			•	
Lambda Lens Technology	Seasonal Color <sup>2</sup>										
	Terra Brown	85-40% (3-1) <sup>2</sup>	8TB	✓	✓	✓	✓			•	
	Black Berry	85-40% (3-1) <sup>2</sup>	8BB	✓	✓	✓	✓			•	
	Chestnut Smoky	85-50% (3-1) <sup>2</sup>	8CS	✓	✓	✓	✓			•	
	Steel Smoky	85-50% (3-1) <sup>2</sup>	8SS	✓	✓	✓	✓			•	
<b>Sonderfarben<sup>3</sup></b>											
Special Color Uni		F00					✓				
Special Color Uni by sample		F99					✓				
Special Color Gradient <sup>2</sup>		G00					✓				
Special Color Gradient by sample <sup>2</sup>		G99					✓				
Special Color Seasonal <sup>2</sup>		S00					✓				
Special Color Seasonal by sample <sup>2</sup>		S99					✓				

### Note:

UV protection and restrictions of use can be found in the information for use, which Rodenstock provides under the following link:  
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For special colours and colours by sample it cannot be guaranteed that they meet the requirements of suitability for night driving, suitability for road use or contrast enhancement

- F00 / G00 / S00 - Existing colour portfolio in other absorption levels
- F99 / G99 / S99 - Special colour which is not included in the colour portfolio or is dyed according to sample/sketch

✓ Not available with Duralux or with Solitaire Back      ✓ Available with coating

<sup>1</sup> UV-Protection only 350 nm / 380 nm for following products: Multifocal, Manufacture, Perfalt 1.50 Balance Stockline. All other lenses offer UV protection of 400 nm in index 1.50.

<sup>2</sup> For toric lenses please indicate the axial position.

<sup>3</sup> Not available with Solitaire Protect PRO 2, Solitaire Protect Sun 2

<sup>4</sup> Not road worthy with Solitaire Red Sun 2 und Solitaire Sky Blue 2

## Colour overview

Plastic	Absorption (Kategorie)	EDV	UV 400				UV 380		Restriction of use		
			1.54	1.50	1.60	1.67	1.60	1.50	none	Not suitable for night driving	Not roadworthy
<b>Medical - Medizinische Kantenfilter<sup>1</sup></b>											
L400 (Beige)	12% (0)	400		✓						•	
L480 (Gelb)	20% (0)	480		✓✓						•	
L500 (Dunkelgelb)	25% (1)	500		✓✓							
L560 (Orange)	55% (1)	560		✓✓						•	•
L580 (Orange Braun)	65% (2)	580		✓✓						•	•
L590 (Rot)	80% (2)	590		✓✓						•	•
L660 (Braun)	80% (2)	668		✓✓						•	•
L660 (Dunkelbraun)	90% (3)	669		✓✓						•	•
<b>ColorMatic 3</b>											
Smoky Grey	5/90% (0-3)	_Y3	✓✓							•	
Smoky Grey	8/88% (0-3)	_Y3			✓	✓				•	
Chestnut Brown	5/90% (0-3)	_B3	✓✓							•	
Chestnut Brown	8/88% (0-3)	_B3			✓	✓				•	
Pilot Green	8/88% (0-3)	_N3			✓					•	
Steel Blue	8/88% (0-3)	_L3			✓					•	
<b>ColorMatic 3 Sun</b>											
Smoky Grey	45/90% (1-3)	_IY			✓					•	
Chestnut Brown	50/90% (1-3)	_JB			✓					•	
Fashion Green	45/90% (1-3)	_IN			✓					•	
Contrast Orange	40/90% (1-3)	_IO			✓					•	
<b>Polarized 1.60 / 1.50<sup>2</sup></b>											
Polarized Brown <sup>3</sup>	85% (3)	_PB		✓	✓					•	
Polarized Grey	85% (3)	_PG		✓				✓ <sup>4</sup>		•	
Polarized Green	85% (3)	_PN		✓				✓ <sup>4</sup>		•	
<b>ColorMatic IQ 2 1.54<sup>2</sup></b>											
Chocolate Brown	6/88% (0-3)	_B2	✓✓								
Pure Grey	6/88% (0-3)	_Y2	✓✓								

✓✓ Available with Duralux, not available with Solitaire Back

✓ Available with coating

<sup>1</sup> For toric lenses please indicate the axial position.

<sup>2</sup> ColorMatic IQ 2 1.54 only available on multifocal lenses

<sup>3</sup> Polarized 1.60 Brown with Solitaire Protect Sun 1.60 has only UV380

<sup>4</sup> Polarized 1.60 Grey and Green have UV380

<sup>5</sup> The denomination of the Medical colours Lxxx refers to the wavelength xxx nm where the transmittance is about 50 %.

### Note:

UV protection and restrictions of use can be found in the information for use, which Rodenstock provides under the following link:  
<https://www.rodenstock.de/de/de/instructions-for-use.html>

## Colour overview

Plastic	Absorption (Category)	EDP	UV 400			UV 380	UV 350	Restriction of use			
			1.50	1.60	1.67			1.50	1.50	none	not suitable for night driving
<b>Road <sup>7</sup></b>											
Solitaire Protect Road 2	12% (0)	RU	✓	✓	✓				•		
Solitaire Protect Road Sun 2	75% (2)	RS	✓	✓	✓					•	

✓ Available with coating

### Note:

UV protection and restrictions of use can be found in the information for use, which Rodenstock provides under the following link:  
<https://www.rodenstock.de/de/de/instructions-for-use.html>

Mirrors	Absorption (Category)	EDP	UV 400 1.50	UV 400 1.60	UV 400 1.67	UV 380	UV 350	Restriction of use
Solitaire SilverMoon 1.60 / 1.67 <sup>8</sup>		VK		✓	✓			•
Solitaire SilverMoon 1.50 <sup>8</sup>		VM	✓					•
Solitaire Red Sun 2 <sup>9</sup>		VR		✓				•
Solitaire Sky Blue 2 <sup>10</sup>		VQ		✓				•
Fashion Mirror Ocean Blue <sup>11</sup>	83% (3)	V3	✓	✓		✓		•
Fashion Mirror Rose Gold <sup>12</sup>	79% (2)	V5	✓	✓		✓		•
Fashion Mirror Chrome Silver <sup>13</sup>	90% (3)	V6	✓	✓		✓		•

### Legend colour overview Plastic

<sup>7</sup> Solitaire Protect Road 2 / Road Sun 2 are only available in combination for Road lenses.

<sup>8</sup> Solitaire SilverMoon reduces the respective transmittance by approx. 16% (index 1.67 / 1.60) or approx. 22% (index 1.50). The resulting filter category is to be taken from the table in chapter 1.5 Notes on Rodenstock sun protection lenses.  
 Not available for 12 % or 20 % tinting. Not recommended, but available for 65 % tinting.

UV-protection and restriction of use according to EN ISO 14889 and 8980-3:2013 or 12312-1:2013, see respective basic colour.  
 Solitaire SilverMoon for index 1.50 in combination with basic colours under 50 % offers an UV-protection up to 350 nm.  
 Above 50 % reduction an UV-protection up to 380 nm is offered.

<sup>9</sup> Can be combined with Uni colours  $\geq$  75% tinting and ColorMatic 3 Sun.

<sup>10</sup> Can be combined with Uni colours  $\geq$  75% tinting.

<sup>11</sup> Fashion Mirror Ocean Blue only available in combination with a defined grey colour

<sup>12</sup> Fashion Mirror Rose Gold only available in combination with a defined brown colour

<sup>13</sup> Fashion Mirror Chrome Silver only available in combination with a defined grey colour

### Note:

- UV-protection and restriction of use according to EN ISO 14889:2013 and 8980-3:2013 or 12312-1:2013
- UV-protection applies to solar UV-radiation according to EN ISO12312-1:2013
- UV-protection and filter category for SilverMoon and Solitaire Red Sun 2 depends on selected basic colour

## Colour overview Mineral

Mineral	Absorption (Category)	EDP	UV 400					UV 380	UV 350	Restriction of use		
			1.50	1.60	1.70	1.80	1.90			none	not suitable for night driving	not roadworthy
<b>Filter</b>												
Brunal	12 % (0)	BS	✓	✓	✓	✓				•		
Coloursin Super	12 % (0)	CP					✓			•		
<b>Color</b>												
Brown	15 % (0)	CO1	✓	✓	✓	✓				•		
	25 % (1)	CO2	✓	✓	✓	✓					•	
	75 % (2)	CO7	✓	✓	✓	✓					•	
	90 % (3)	CO9	✓	✓	✓	✓					•	
<b>Colormatic</b>												
Colormatic Brown	15-75%(1-3)	CH		✓						•	*	
Colormatic Grey	15-75%(1-3)	CG		✓						•	*	
Colormatic SB (Brown)	15-70%(1-3)	CB	✓							•	*	
Colormatic S (Greybrown)	15-75%(1-3)	CS	✓							•	*	

### \*Note:

- UV-protection applies to solar UV-radiation according to EN ISO12312-1:2013. Depending on the corrective power and type of anti-reflection coating, the colour and transmission of delivered colours may differ slightly from the existing samples.
- Colormatic lenses are suitable for night driving according to EN ISO 14889 and 8980-3:2013 or 12312-1:2013 up to a centre thickness of approx. 4 mm (brown) / 6 mm (grey) without anti-reflective coating or 6 mm (brown) / 7 mm (grey) with anti-reflective coating.