

[Understanding Vision](#) Oct 16, 2017

Plastic or glass lenses?

Which material is best for which patient? Do your homework before you shop for glasses and you will enjoy better vision.

[Glass spectacle lenses](#)

[Plastic Glasses – Are they Just for Children and Athletes?](#)

This fundamental question is asked every time a pair of spectacles is purchased: Do you prefer plastic or glass lenses? When you decide, remember that your glasses should be sturdy, attractive, shatter-resistant, comfortable – and, last but not least, easy to wear. The following holds true for both plastic and glass: Choosing the most suitable material hinges on individual factors such as visual acuity and personal taste.

Glass spectacle lenses

Glass spectacle lenses – i.e. lenses made from natural glass according to their professional classification – used to be the norm. They still have their place in optometry today thanks to their exceptional scratch resistance. Consumers will also like the fact that they are also less expensive than comparable plastics. In cases of severe ametropia, they can also provide the correction needed with relatively [thin lenses](#) – an aesthetic aspect that is not to be underestimated.

Natural glass is also recommended for bifocal or trifocal lenses because various materials can be melted together without forming a noticeable cutting edge. In principle, the increased thickness of the material makes it optically purer; the glasses appear cleaner and are free from disruptive colour fringes (so-called dispersion).

When light strikes a spectacle lens, it is broken and dispersed into its component parts. This creates a disruptive visible colour spectrum, similar to a prism. The intensity of this effect, known as dispersion, depends on the condition of the material used: high-quality material = minimal

dispersion. The colour fringe effect is measured based on the so-called Abbé number: The higher the Abbé number for a spectacle lens material, the lower the dispersion.

The advantage of natural glass: It produces considerably weaker colour fringes even when the refractive index is identical to that of plastic lenses.

The greater the refractive index range (also called the refraction index) of the spectacle lens material, the thinner the finished glass. For high dioptric values, it is therefore advisable to use a lens material with a high refractive index, as this will reduce the thickness of the lenses and thus the weight of the spectacles. For example: A lens with a refraction index of 1.6 is always thinner than one with a refraction index of 1.5 for an identical dioptric value.

Natural glass has a clear advantage here: Its refractive index range extends from 1.5 to 1.9, while the refractive index range of organic glass (= plastic) is only 1.5 to 1.74. Natural glass also has a greater density than plastic.

The result: Even when the refraction index is the same, spectacle lenses made of glass are always thinner than those made of plastic – but they are also substantially heavier.

Plastic Glasses – Are they Just for Children and Athletes?

Plastic glasses – also known as organic glass – are used today for all types of spectacles and are also best for sports and children's glasses.

- They are very light and therefore comfortable to wear.
- They are also highly break resistant. In that respect they outperform glass up to 100 times, depending on the type of plastic used.
- Moreover, they provide better protection against flying sparks (for example from fireworks, campfires, welding and grinding work) and cannot splinter – a significant safety benefit in many everyday situations.

Disadvantage: Compared to natural glasses, plastics have a low scratch resistance. As a result, they are more sensitive and require additional maintenance. A special coating can be applied as a remedy, for instance one that repels dirt or hardens the material (such as [> ZEISS DuraVision Platinum](#)).

Another advantage of plastic: While natural glasses can only be tinted in a few colours and at a relatively high cost, plastic glasses are easy to treat with virtually all tints. **Plastic is the first choice for those who want spectacles with [> coloured lenses](#) as a fashion accessory.**

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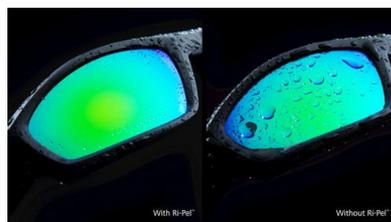


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