



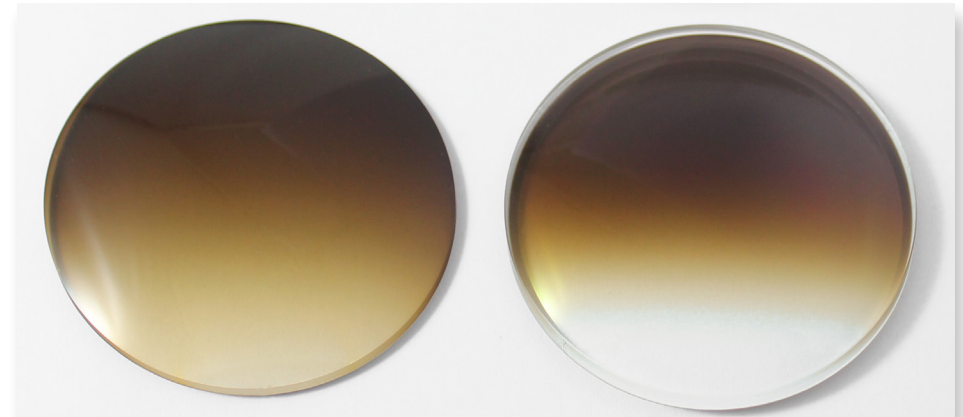
OptoTech

Tinted Gradient AR

How are gradient lenses traditionally made?

The traditional way of creating gradient lenses is a very tedious process. In a separate tinting machine, the lens is bathed into a solution containing coloured dye and additional substances to accelerate the tinting process. To build up the gradient design, parts of the lens are repeatedly dipped into the solution so that the lens can absorb the colour with different intensities. However, the process is very sensitive to any kind of alteration: it depends on various factors such as the concentration and temperature of the solution, material index or immersion time etc.

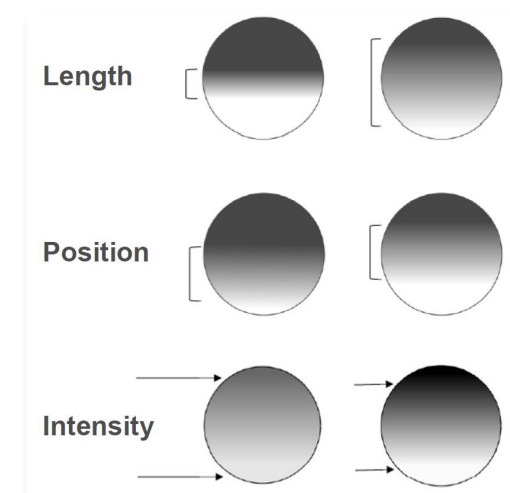
That's why the tinting results and the gradient design on the lenses rarely are the same. In addition to that, the traditional tinting process is limited to certain kinds of materials and also the hard coating of finished lenses has to be considered since standard varnishes are non-tintable.



Gradient lens comparison traditional tinting process (l.) and tinted gradient AR-coating (r.): The bottom part of the AR-coated lens is completely clear whereas the traditional gradient lens is fully tinted

Why should you start tinting with AR-coating machines?

The tinting process in a vacuum chamber can be precisely controlled to get excellent tinting quality every time and regardless of lens material and index. This in-chamber process allows the gradient design to be fully adaptable in colour, gradient length, gradient position and the intensity of the different shades. That means, that once the ideal gradient design is customized, the different layers of thin coats are applied accurately on the back surface of the lens (cv side) enabling repeatable and 100% stable tinting results of the highest quality.



Fully adaptable gradient design



Tinted Gradient AR

Gradient Mirror Coating – full range of colours

Originally, the colour for the tinting process were limited to grey and brown. To overcome this shortage, Opto-Tech has created the gradient mirror process: A unique technique where the tinted gradient process and colourful mirror coatings are combined to create a completely new coating design with high degrees of individualization.

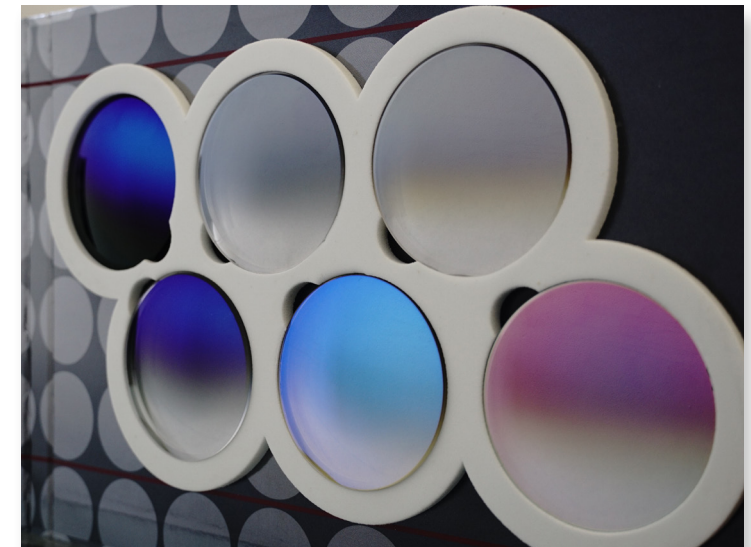
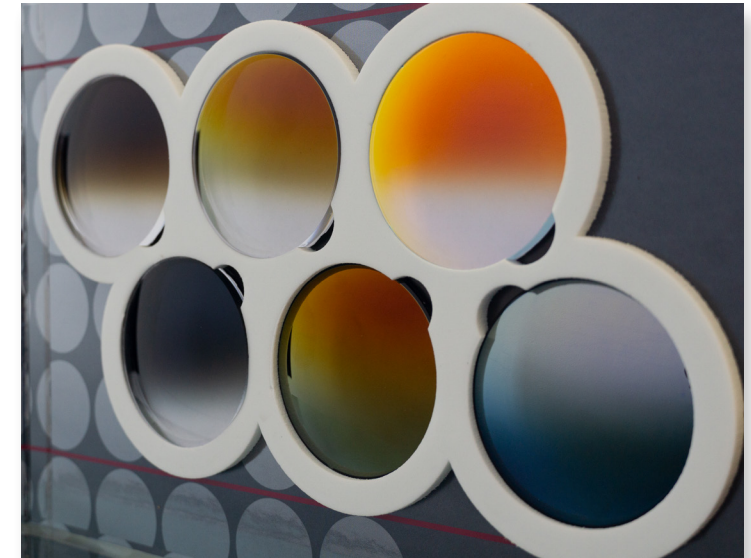
The mirror coating itself can be applied like a gradient with adaptable intensity, gradient length as well as position. This will give the lens the effect of a dielectric mirror coat, which is a semi-transparent mirror coating that has the vibrant colour of the mirror coating and still accommodates clear visibility.

Another approach with this technique is to use mirror and tinted gradient coating on both sides of the lens. The mirror coating is evenly applied (solid) to the front side of the lens (cx side), whereas the tinted gradient is on the opposite side. The effect that is created here is a transparent mirror coating that gradually changes into different colours and still provides clear visibility. This offers maximum flexibility and a huge variety of design options for gradient lenses as well as ensures that the tinting is durable and of the highest quality.



Example: Red and Blue Gradient lens

A red mirror coat (solid on cx side) and brown tinted gradient with high colour intensity at the top, but clear at the bottom (cv side) are applied on the lens. At the top of the lens, the red colour of the mirror coat is fully visible, because the dark color of the tint absorbs the light and reflects the light wavelengths responsible for the red color back. At the lower part of the lens, the light is directed through the red mirror coat, but since that backside of part of the lens is clear, in transmission the complementary color blue is visible.





Why are gradient lenses so popular?

Sunglasses with gradient lenses have been on high demand for years. Sporting dark tinting on the top, which gradually becomes lighter towards the bottom, gradient lenses are versatile both in function and style. The darker shade is due to higher tint intensity on the upper part of the lens which absorbs the light and shields the eyes from sun rays. The lighter part allows more light to come through the middle of the lens and offers clear visibility for near and intermediate distances. Apart from their practicable characteristics that make them ideal for indoor or outdoor activities, gradient lenses also make a fashion statement thanks to their stylish appearance.

The sophisticated look that the smooth transition between the different shades creates, has become a popular choice for people looking for functional but stylish glasses. Top brands have been using gradient lenses in their eyewear collection to create different styles and looks that are unique, distinctive and fashionable for many years. In fact, the increasing popularity have made gradient lenses a valuable addition for brands and for the eyewear industry in general.

Advantages of Tinted Gradient AR:

- Fast process in highest quality for **all Indices**
- **100% stable** tinting results
- **No** need of **separate tinting machine**
- Fully adaptable gradient design in **length, position, intensity & color**
- For **different indexes** (also high index) as well as **freeform**
- Gradient mirror coating process for **full range of colours**
- **Vibrant** and **durable tinting** quality
- Offers **maximum flexibility**

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