Technical Notes
2011

Transitions XTRActive
Adaptive Lenses

turnup the dark
The darkest everyday Transitions lenses.

The chart below provides detail not only on the level of darkness of Transitions XTRActive lenses, but also the speed at which they achieve full activation at 23°C.

The left side of the chart shows the initial percent transmission of Transitions XTRActive lenses and Transitions VI lenses indoors. Transitions XTRActive lenses contain both visible and UV light activated photochromics—molecules that react to visible light energy, in addition to traditional photochromics that react only to UV energy. It’s because of these special molecules that Transitions XTRActive lenses activate behind the windshield of a car and the reason there is a slight tint while indoors. You can see here that although Transitions XTRActive lenses only transmit 83% of light indoors, with an anti-reflective (AR) coating they allow the same amount of light to reach the eye as Transitions VI lenses do without an AR coating (89% transmission).

As you look to the right side of the chart, you can see the speed at which Transitions XTRActive lenses and Transitions VI lenses activate outdoors. Most of the activation of Transitions XTRActive lenses occurs in the first minute. Fast to activate, Transitions XTRActive lenses darken to transmit only 10% of light—that’s a 90% tint at 23°C. Where Transitions VI lenses are available in both grey and brown, Transitions XTRActive lenses are only available in grey and darken to a green-grey color when activated.
The darkest everyday Transitions lenses—in hot weather.

Like all photochromic lenses, the performance of Transitions XTRActive lenses will vary at different temperatures. In hotter temperatures, Transitions XTRActive lenses are less dark than at an ambient temperature. In colder temperatures, the lenses will be darker than at an ambient temperature.

Transitions XTRActive lenses outperform Transitions VI lenses as the darkest everyday lenses available in the Transitions Optical family, especially in hot temperatures. Transitions XTRActive lenses achieve 80% tint vs. Transitions VI lenses which reach 73% tint at 35°C.

Despite the extra darkness achieved by Transitions XTRActive lenses at room and hot temperatures, both Transitions XTRActive lenses and Transitions VI lenses reach the same level of tint at 10°C.
Transitions XTRActive lenses activate moderately behind the windshield of a car.

Unlike Transitions VI lenses, Transitions XTRActive lenses were specially designed with visible light-activated photochromics. With use of these special photochromics, Transitions XTRActive lenses darken behind a windshield of a car to provide some comfort while driving. Transitions XTRActive lenses achieve 50% transmission behind a windshield at 27°C.

Darkening of Transitions XTRActive lenses behind a windshield of a car is influenced by several factors, such as shape and inclination of the windshield, windshield transmission characteristics, driver position, and lateral windows. Some patients may want additional glare protection while driving. We recommend Transitions VI lenses and Transitions XTRActive lenses for everyday eyewear and polarized sunglasses, such as Drivewear® Transitions® SOLFX™ lenses for situations with blinding glare.

![Activation Behind a Windshield of a Car at 27°C](chart.png)
Speed of fade back.

Although Transitions XTRActive lenses are the darkest everyday Transitions lenses available at all temperatures and activate moderately behind the windshield of a car, they do have a slower rate of fade back compared to Transitions VI lenses. After 15 minutes of activation, it takes Transitions XTRActive lenses 14 minutes to fade to 70% transmission at 23°C vs. Transitions VI lenses which reach 70% transmission after nine minutes.

![Speed of Fade Back to 70% Transmission](image)

UV blockage.

Most people, while aware of the danger of UV exposure to their skin, are inadequately aware of the UV threat to their eyes. Therefore, it is vital to educate all patients about the risks of sun damage to their eyes. Just like Transitions VI lenses, Transitions XTRActive lenses provide convenient protection from harmful UV rays and glare that can obscure vision. Both Transitions VI lenses and Transitions XTRActive lenses block 100% of harmful UVA and UVB rays in both clear and darkened states and provide UV 400 protection.

![UV and Visible Light Transmission](image)
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Photochromic performance is influenced by temperature, UV exposure and lens material.

**Process compatibility.**

Transitions XTRActive lenses are compatible with all major anti-reflective coatings from major manufacturers. Transitions lenses reduce discomforting and disabling glare. When combined with an anti-reflective coating, they further enhance the wearer’s experience by improving indoor clarity, reducing distracting glare and enhancing nighttime driving. Applying an anti-reflective coating to the lens has no effect on darkening performance.

**International standards of performance.**

- Category as per ISO 8980-3 Cat. 0 Non Activated, Cat. 3 Activated
- Traffic signal recognition as per ISO 14889
- Suitable for night driving per ISO 14889
- Block 100% UVA and UVB radiation per ISO 8980-3
- Block 100% UVA and UVB radiation per ANSI Z80.3
- Block 100% UVA and UVB radiation per EN 1836
- Impact resistant as per US FDA Impact Resistant Regulation 21 CFR 801.410
- Impact resistant as per ISO 14889 Section 5.2