



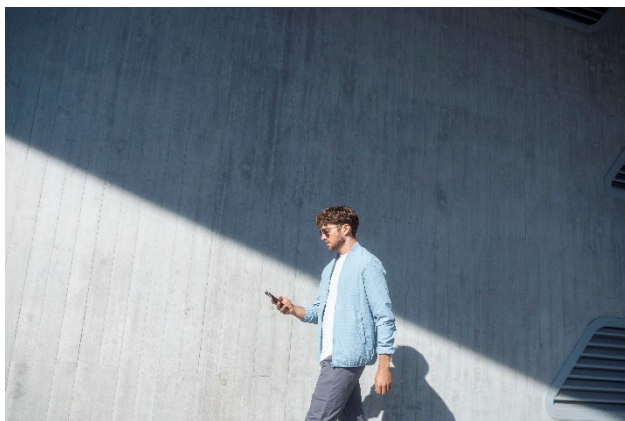
Press Release

ZEISS Introduces the Next Generation of Photochromic Lenses

ZEISS PhotoFusion X lenses darken and clear faster¹ while providing a new level of integrated blue light and UV protection

AALEN/Germany, 22/February/2022

A single pair of glasses for all light conditions instead of having to switch between two pairs, a clear and a dark, suntinted pair when moving between outdoors and indoors. That's what photochromic lenses have been offering for years. ZEISS PhotoFusion X is the new and improved generation of photochromic lenses based on an entirely new photochromic system. With this relaunch, transition speed is significantly improved. In addition, comprehensive blue light protection both in- and outdoors is provided by a new base lens material.



The next generation of ZEISS photochromic lenses offers spectacle wearers more comfort and better performance.

Performance optimized

When light reactive lenses are exposed UV radiation, billions of photochromic dyes in the lens begin to change their shape. This reaction causes the eyeglass lenses to darken. The latest ZEISS PhotoFusion X lenses use a completely new photochromic system with faster dyes in a robust yet more open carrier matrix. In numbers, this means ZEISS PhotoFusion X lenses darken up to 60 percent faster than the previous generation of ZEISS PhotoFusion.² It's

even more important for many spectacle wearers that lenses clear fast when moving from outside to inside. That's why special efforts were made to improve this process. David Sinnott, Head of Product Management at ZEISS Vision Care confirms, "Many spectacle wearers appreciate the convenience of self-tinting eyeglass lenses, but fear that the clearing process is too slow and that they are literally 'in the dark' indoors for a long time. With the new generation of

¹ compared to previous generation ZEISS PhotoFusion.

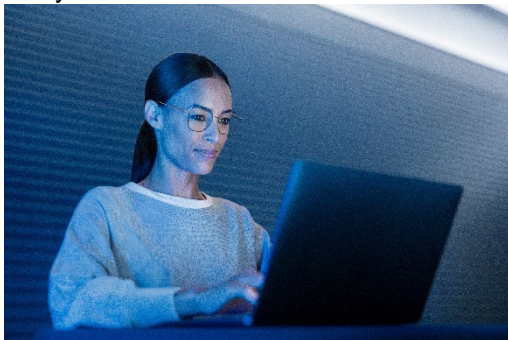
² Analyses by Technology and Innovation, Carl Zeiss Vision GmbH, DE 2021 in accordance to ISO 8980-3. Based on the average speed (%T/min) of activation from clear state to 30%T at 23°C in grey 1.60 index and polycarbonate in HC only form.



photochromic lenses, we have succeeded in accelerating the clearing up to 80 percent faster than the previous generation."³

Combining precision optics and enhanced protection

With today's on-the-go lifestyle, eyeglass wearers are undoubtedly familiar with the problem of regularly switching from clear to sunglasses. And most of the time, the prescription sunglasses are not at hand when they are needed. Less than 22 percent,⁴ for example, always wear sunglasses when they are outside in the sun – unaware that UV exposure is still up to 40 percent even in the shade. ZEISS PhotoFusion X lenses offer the advantage of glare and UV protection outdoors without the need for separate glasses. It provides UV protection of up to 400 nanometres in any activation state, whether clear or dark. But what's so unique about the new generation of self-tinting lenses? The new generation photochromic lenses are based on [ZEISS BlueGuard](#) lens material. The base material selectively absorbs UV radiation and potentially harmful blue light. The eyeglass lenses absorb up to 94 percent of potentially harmful blue light outdoors when activated and 50 percent indoors in clear state – both in the wavelength range between 400 and 455 nanometres.⁵ Although [blue light](#) from digital devices and indoor lighting such as LEDs does not directly threaten eye health, it may affect visual comfort and well-being. A study from 2021 confirms that 9 out of 10 surveyed wearers of ZEISS BlueGuard lenses say they



experience less digital eyestrain.⁶ The new combination of exactly that ZEISS BlueGuard base lens material and the new photochromic system thus represents real added value for photochromic lens wearers.

The new base material enables the blocking of potentially harmful blue light, both from natural light from the sun and artificial light from LED lamps or screens.

³ Testing by independent laboratory in USA, 2021 according to requirement in ISO 8980-3. Based on the average speed (%T/min) of fade-back from fully activated state to 80%T at 23°C in grey 1.60 index and Polycarbonate HC only form.

⁴ Vision Council of America, UV Eye Protection Study, 2018.

⁵ Analyses by Technology and Innovation, Carl Zeiss Vision GmbH, DE 2021. Based on Blue Violet Block (BVB) metric that quantifies the amount of light 400-455nm blocked by PFX Extra Grey 1.6 HC form.

⁶ Consumer Acceptance Survey - Top 2 boxes results of n=187 spectacle lens wearers, who purchased & wear ZEISS BlueGuard lenses in China, May 2021.



New colors and style options

With the new generation of ZEISS PhotoFusion X lenses, there are also many attractive style options available. It comes in five different colors, including the new and improved versions of grey, extra grey, and brown. In addition, stylish flash mirror coatings can be added for a personal touch, making self-tinting eyeglass lenses practical, stylish, and modern.



ZEISS PhotoFusion X lenses are available in all RX designs and with all ZEISS coatings.

Practical, stylish and modern, all at once.

The photochromic market is growing

Overall, the market and consumer interest in self-tinting lenses have been growing – and not just in progressive lenses but also in single vision lenses. Currently, photochromic lenses account for more than eleven percent of all eyeglass lenses sold worldwide. The segment is growing twice as fast as the overall global market for eyeglass lenses.⁷ "With the significant improvement in the performance of our self-tinting eyeglass lenses, the increasing consumer awareness of blue light protection and the new trendy options offered by the ZEISS PhotoFusion X portfolio, we are confident about the future of this eyeglass lens segment," says David Sinnott, Head of Product Management at ZEISS Vision Care.

PhotoFusion, BlueGuard and UVProtect are registered trademarks of Carl Zeiss Vision GmbH.

Press contact

ZEISS Vision Care
Chantal Kaucher
Phone: +49 7361 591-1950
E-Mail: Chantal.kaucher@zeiss.com

<http://www.zeiss.com/vision-news>

⁷ Strategy with vision: Consultants to eyewear and eyecare. World lens and frame demand study 2020. Germany: SWV, September 2020.



About ZEISS

ZEISS is an internationally leading technology enterprise operating in the fields of optics and optoelectronics. In the previous fiscal year, the ZEISS Group generated annual revenue totaling 7,5 billion euros in its four segments Semiconductor Manufacturing Technology, Industrial Quality & Research, Medical Technology and Consumer Markets (status: 30 September 2021).

For its customers, ZEISS develops, produces and distributes highly innovative solutions for industrial metrology and quality assurance, microscopy solutions for the life sciences and materials research, and medical technology solutions for diagnostics and treatment in ophthalmology and microsurgery. The name ZEISS is also synonymous with the world's leading lithography optics, which are used by the chip industry to manufacture semiconductor components. There is global demand for trendsetting ZEISS brand products such as eyeglass lenses, camera lenses and binoculars.

With a portfolio aligned with future growth areas like digitalization, healthcare and Smart Production and a strong brand, ZEISS is shaping the future of technology and constantly advancing the world of optics and related fields with its solutions. The company's significant, sustainable investments in research and development lay the foundation for the success and continued expansion of ZEISS' technology and market leadership. ZEISS invests 13 percent of its revenue in research and development – this high level of expenditure has a long tradition at ZEISS and is also an investment in the future.

With over 35,000 employees, ZEISS is active globally in almost 50 countries with around 30 production sites, 60 sales and service companies and 27 research and development facilities. Founded in 1846 in Jena, the company is headquartered in Oberkochen, Germany. The Carl Zeiss Foundation, one of the largest foundations in Germany committed to the promotion of science, is the sole owner of the holding company, Carl Zeiss AG.

Further information at www.zeiss.com

ZEISS Vision Care

ZEISS Vision Care is one of the world's leading manufacturers of eyeglass lenses and ophthalmic instruments. The unit is allocated to the Consumer Markets segment and develops and produces offerings for the entire eyeglass value chain that are distributed globally under the ZEISS brand.