Today‘s Webinar: The Invisible Truth About UV

Thank you for joining us, we will begin our Webinar shortly…

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ZEISS Web Series Speakers

Webinar presenters:

Brent McCardle, LDO

Mary Herd, MBA, ABOC

Sara Cecchini, MBA

Robert T. Spirito, MBA, ABOM, NCLEC

Steven Haifawi, MBA, ABOC

Cindi Davis, ABOC, CPOT

Maureen Hanna

ZEISS upcoming webinars

Upcoming Webinars

This Thursday and Friday:

Social Media and Patient Outreach

As traffic in your office and dispensary slows due to outside forces, it is more important than ever to make sure consumers know about the services you offer and how to you set yourself apart from the competition. In this webinar we will share with you some best practices for your online presence and patient outreach.

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Maximizing every selling opportunity

With increased competition and reduced traffic in the dispensary due to outside forces and social distancing it is more important than ever to understand the ways you can maximize each selling opportunity. This webinar will provide you with some of the best practices to improve margins for private pay and managed vision care.

https://zeiss.com/webinars

Today's Presenter

Robert T. Spirito, MBA, ABOM, NCLEC
Head of Product Marketing

Robert.Spirito@zeiss.com

Continuing Education

Is this course accredited?

- Yes, you can receive either 1 hour of ABO or NCLE

How do I get my credit?

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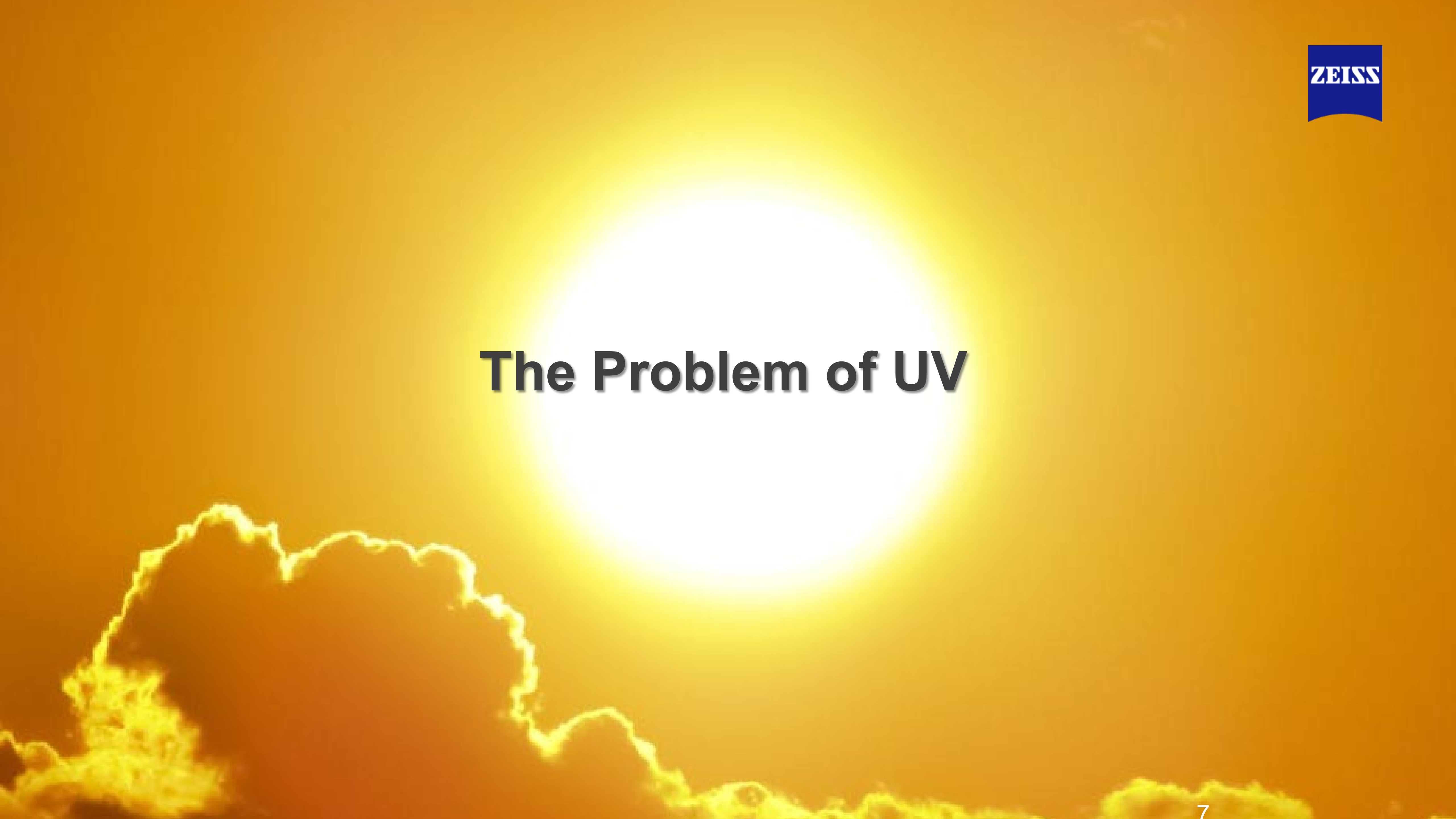
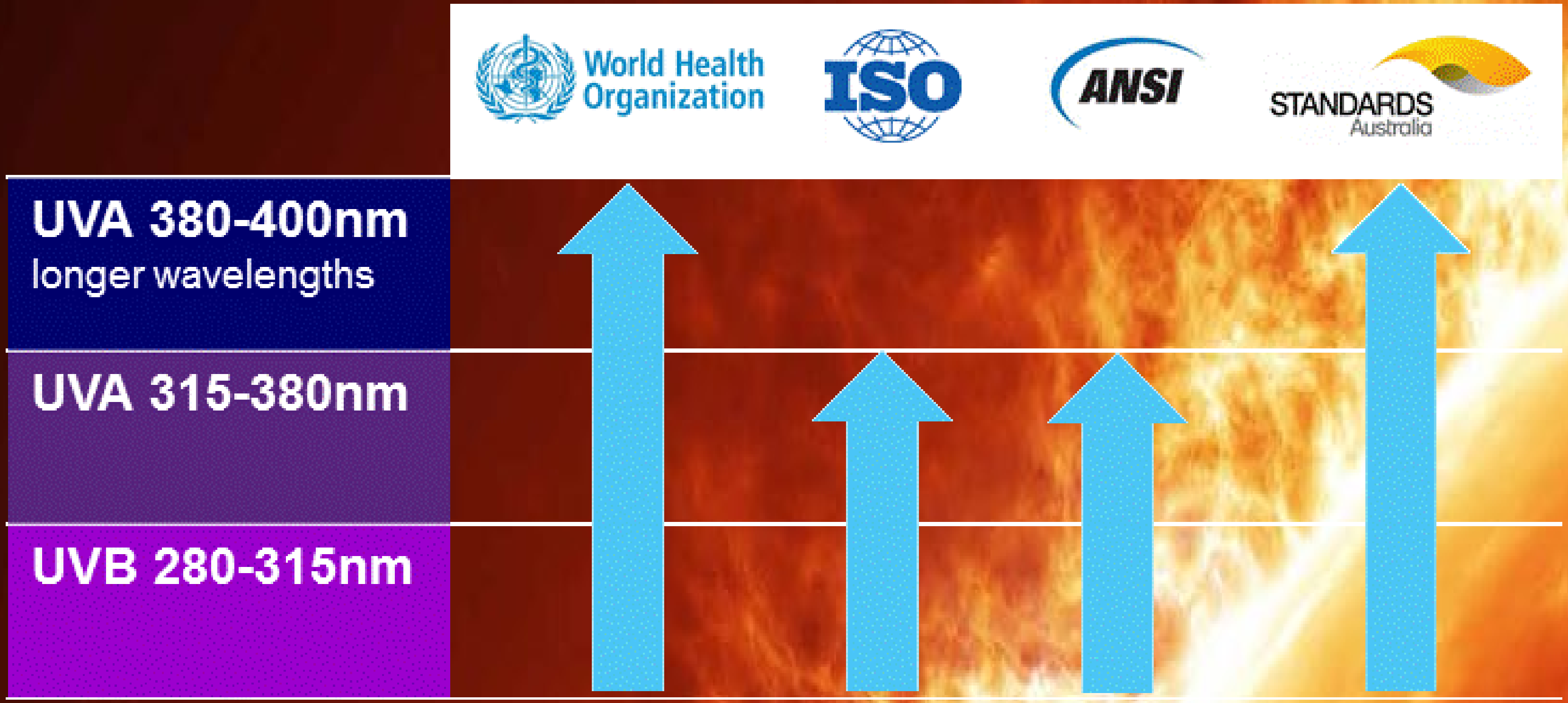
The Invisible Truth About UV

Robert T. Spirito, MBA, ABOM, NCLEC
Head of Product Marketing
March 2020



The Problem of UV

Current market standards for UV in lenses does not always consider the full UV spectrum up to 400nm



UVR from 380-400nm contributes 40% of Total Solar UV

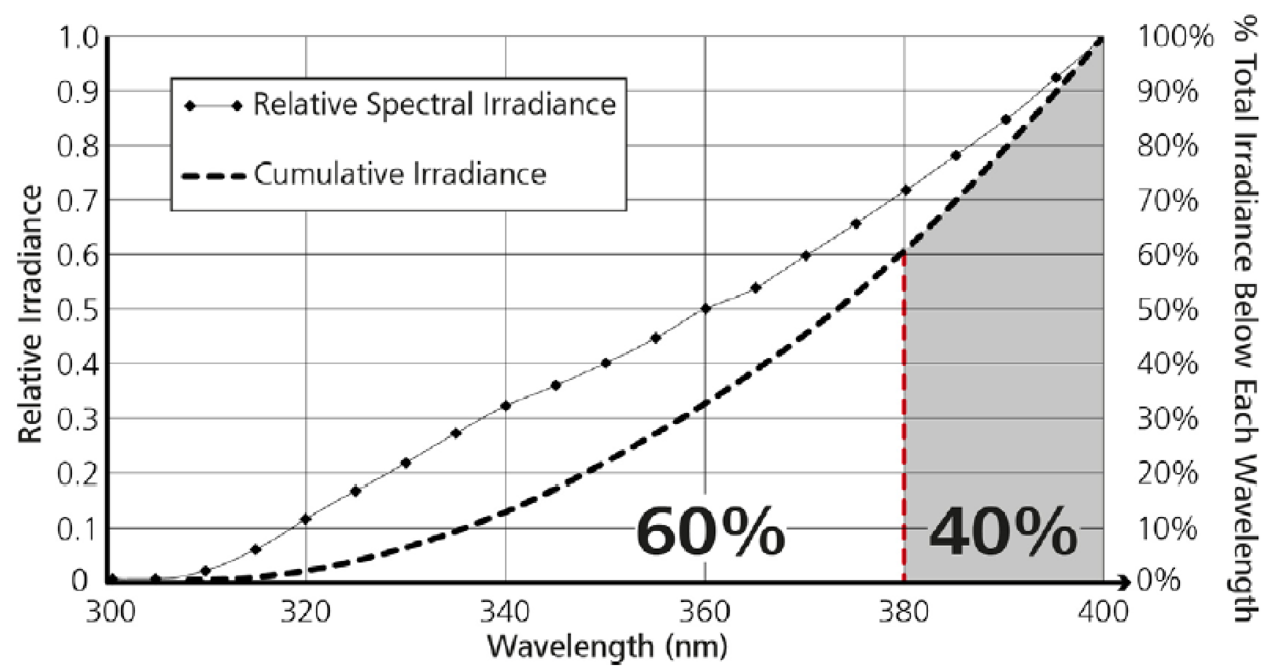
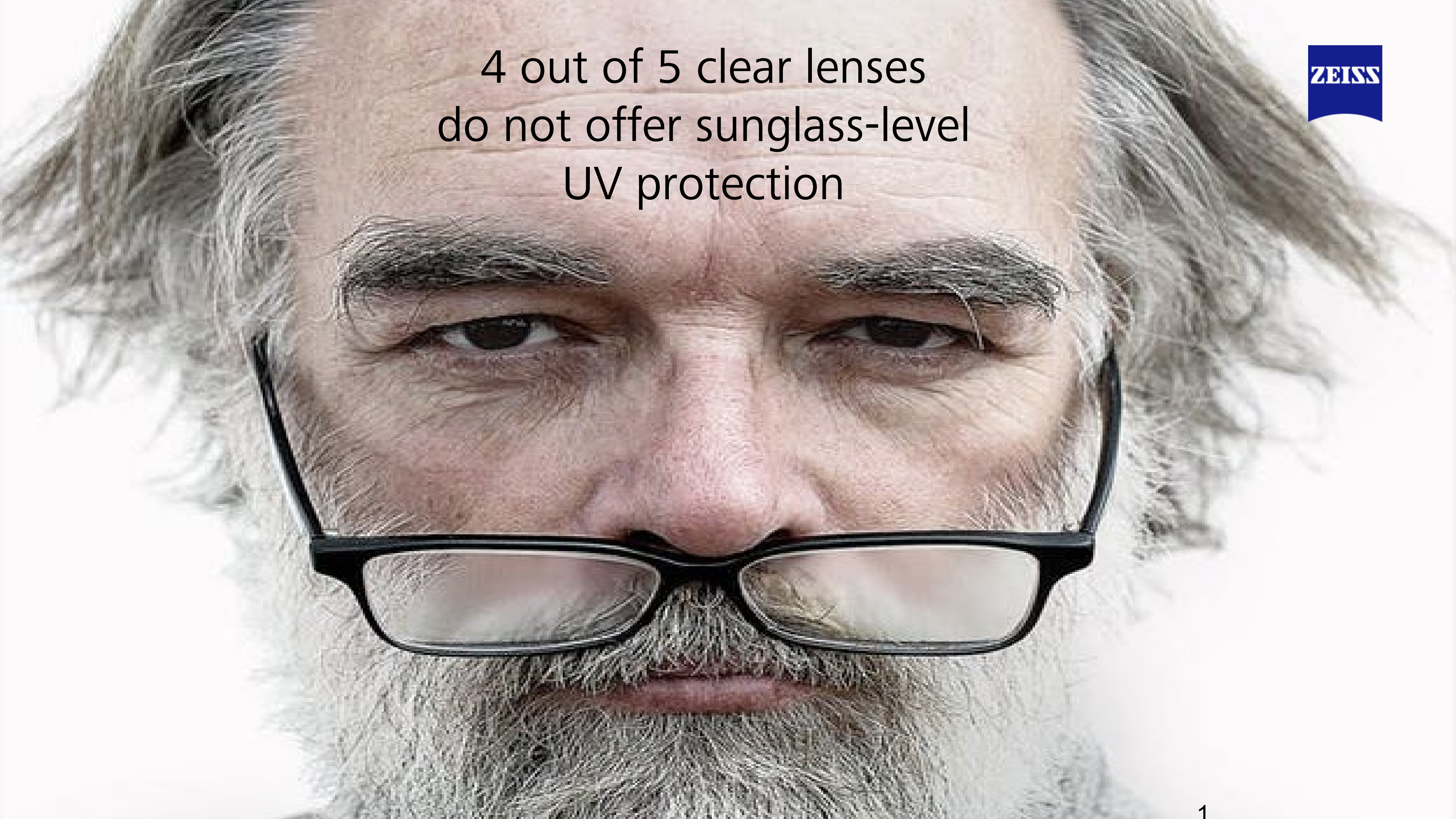


Figure 2. ISO 8980-3 solar UVR spectrum normalized to its maximum value at wavelength of 400 nm

4 out of 5 clear lenses do not offer sunglass-level UV protection

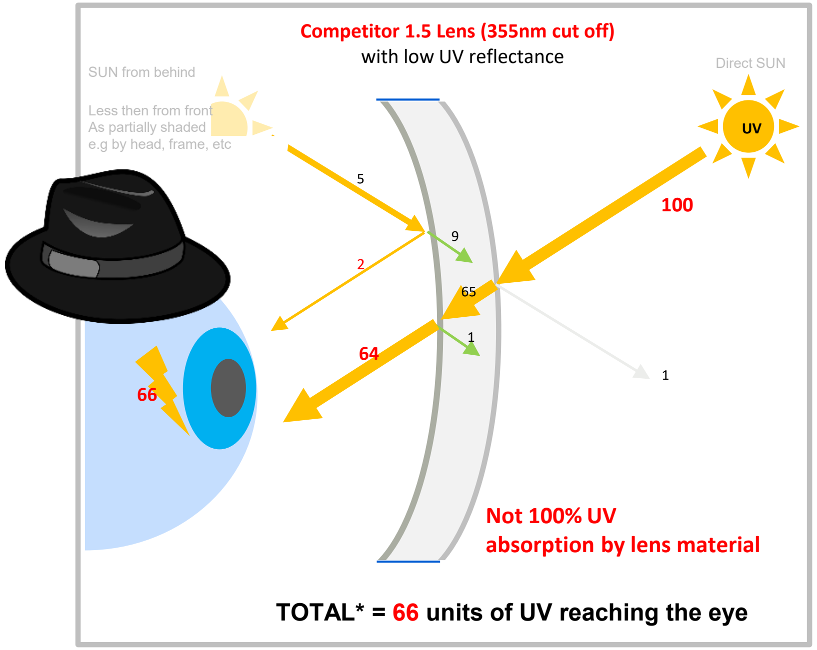


Direct vs. Indirect UV radiation

In some „sun protection factor“ formula, the ratio **50:50** between direct UV and indirect UV is used.

According to a recent study the ratio is more like **95:5** towards direct UV radiation. The opening angle is much larger towards the front. Light from the side/ back is already shaded by the head and the frame, and the right angle of incidence has to be met to reflect the light via the back surface of the lens into the eye.

Since the ratio is 95:5 it makes no sense having „Back UV Feature AR“ only without blocking direct UV…



Because Standard 1.5 material does not block UV completely,
Less UV reflectance of AR means **more UV radiation enters the eye**.

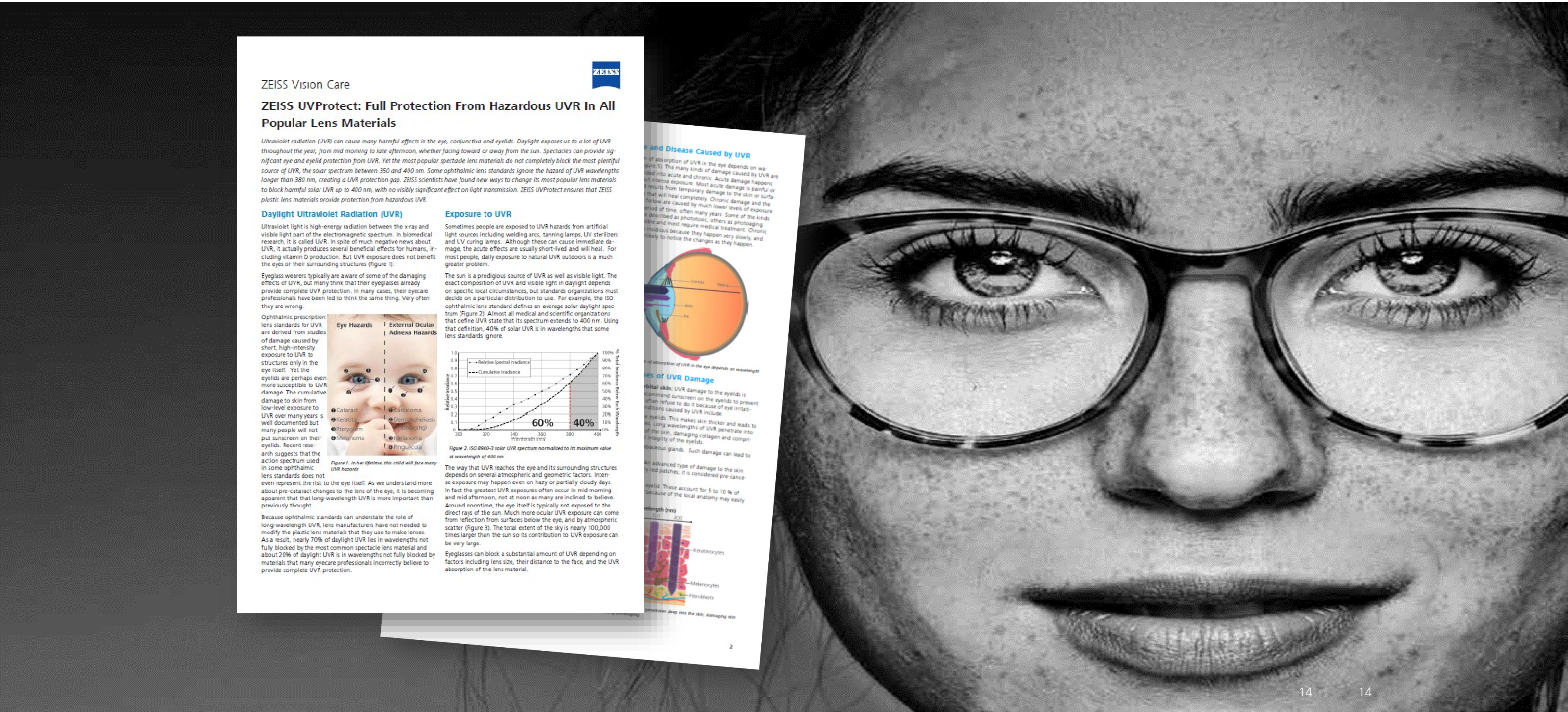
UV Protection is a topic many consider already “solved”

ZEISS

But it has not been solved:

- **380nm is the optical industry UV *definition* for clear lenses**
- **400nm is the globally recognized *definition* of UV**
- **Clear lenses, even polycarbonate lenses, do not protect eyes from Total Solar UV radiation up to 400 nm.**
- **UV AR coatings only address the small amount (~5%) of reflected UV that comes off of the back of a lens**

The Science behind UV and the need for UV protection up to 400nm is well founded



ZEISS Vision Care

ZEISS UVProtect: Full Protection From Hazardous UVR In All Popular Lens Materials

Ultraviolet radiation (UVR) can cause many harmful effects in the eye, conjunctiva and eyelids. Daylight exposes us to a lot of UVR throughout the year, from mid morning to late afternoon, whether facing toward or away from the sun. Spectacles can provide significant eye and eyelid protection from UVR. Yet the most popular spectacle lens materials do not completely block the most plentiful source of UVR, the solar spectrum between 350 and 400 nm. Some ophthalmic lens standards ignore the hazard of UVR wavelengths longer than 380 nm, creating a UVR protection gap. ZEISS scientists have found new ways to change its most popular lens materials to block harmful solar UVR up to 400 nm, with no visibly significant effect on light transmission. ZEISS UVProtect ensures that ZEISS plastic lens materials provide protection from hazardous UVR.

Daylight Ultraviolet Radiation (UVR)

Ultraviolet light is high-energy radiation between the x-ray and visible light part of the electromagnetic spectrum. In biomedical research, it is called UVR. In spite of much negative news about UVR, it actually produces several beneficial effects for humans, including vitamin D production. But UVR exposure does not benefit the eyes or their surrounding structures (Figure 1).

Eyeglass wearers typically are aware of some of the damaging effects of UVR, but many think that their eyeglasses already provide complete UVR protection. In many cases, their eyecare professionals have been led to think the same thing. Very often they are wrong.

Ophthalmic prescription lens standards for UVR are derived from studies of damage caused by short, high-intensity exposure to UVR to structures only in the eye itself. Yet the eyelids are perhaps even more susceptible to UVR damage. The cumulative damage to skin from low-level exposure to UVR over many years is well documented but many people will not put sunscreen on their eyelids. Recent research suggests that the action spectrum used in some ophthalmic lens standards does not even represent the risk to the eye itself. As we understand more about pre-cataract changes to the lens of the eye, it is becoming apparent that that long-wavelength UVR is more important than previously thought.

Figure 1. In her lifetime, this child will face many UVR hazards

Because ophthalmic standards can understate the role of long-wavelength UVR, lens manufacturers have not needed to modify the plastic lens materials that they use to make lenses. As a result, nearly 70% of daylight UVR lies in wavelengths not fully blocked by the most common spectacle lens material and about 20% of daylight UVR is in wavelengths not fully blocked by materials that many eyecare professionals incorrectly believe to provide complete UVR protection.

Exposure to UVR

Sometimes people are exposed to UVR hazards from artificial light sources including welding arcs, tanning lamps, UV sterilizers and UV curing lamps. Although these can cause immediate damage, the acute effects are usually short-lived and will heal. For most people, daily exposure to natural UVR outdoors is a much greater problem.

The sun is a prodigious source of UVR as well as visible light. The exact composition of UVR and visible light in daylight depends on specific local circumstances, but standards organizations must decide on a particular distribution to use. For example, the ISO ophthalmic lens standard defines an average solar daylight spectrum (Figure 2). Almost all medical and scientific organizations that define UVR state that its spectrum extends to 400 nm. Using that definition, 40% of solar UVR is in wavelengths that some lens standards ignore.

Figure 2. ISO 8980-3 solar UVR spectrum normalized to its maximum value at wavelength of 400 nm

The way that UVR reaches the eye and its surrounding structures depends on several atmospheric and geometric factors. Intense exposure may happen even on hazy or partially cloudy days. In fact the greatest UVR exposures often occur in mid morning and mid afternoon, not at noon as many are inclined to believe. Around noontime, the eye itself is typically not exposed to the direct rays of the sun. Much more ocular UVR exposure can come from reflection from surfaces below the eye, and by atmospheric scatter (Figure 3). The total extent of the sky is nearly 100,000 times larger than the sun so its contribution to UVR exposure can be very large.

Eyeglasses can block a substantial amount of UVR depending on factors including lens size, their distance to the face, and the UVR absorption of the lens material.

14

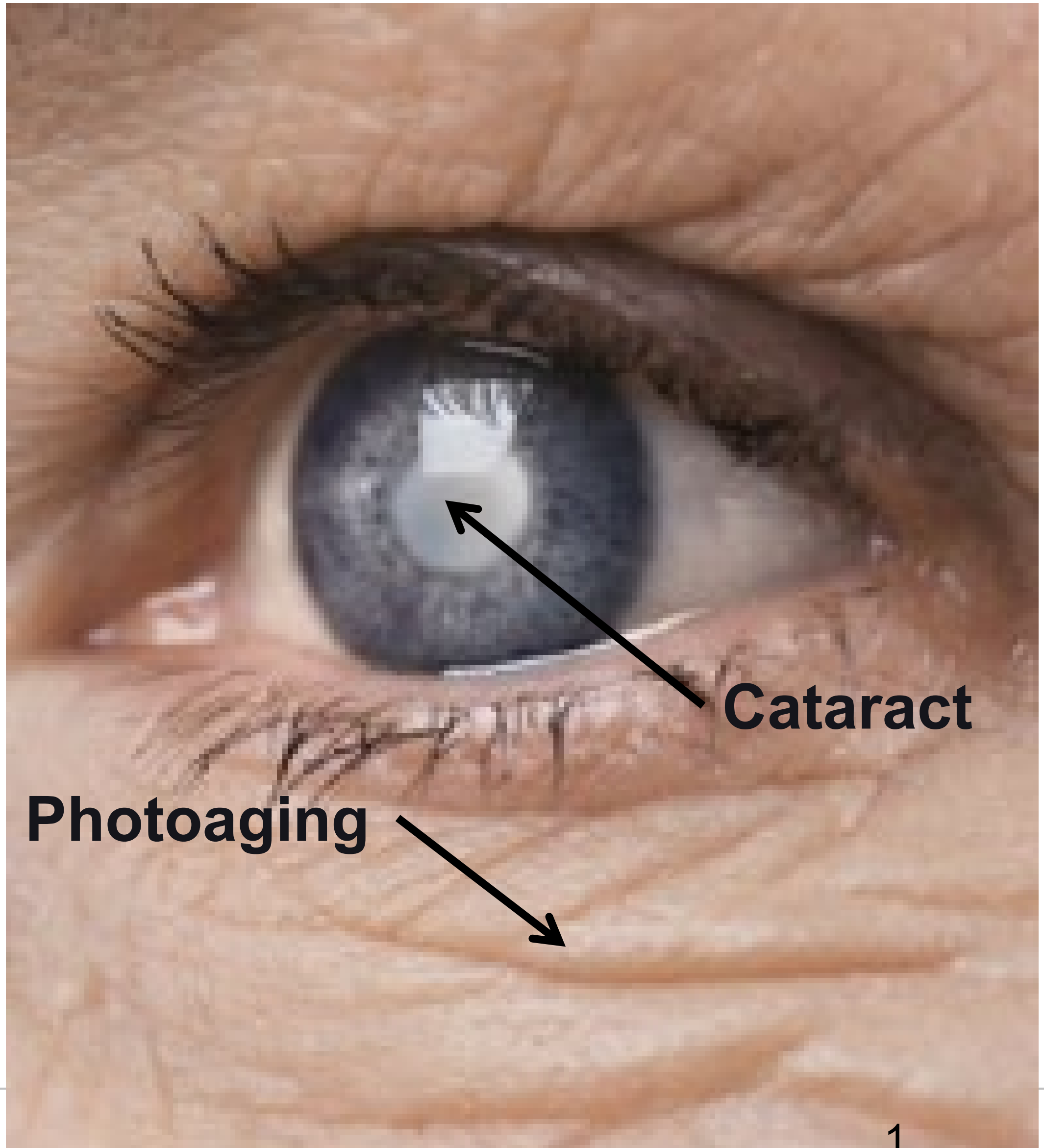
Long wavelength UVR between 380 and 400nm delivers <u>only</u> harm to the eyes and skin

Short-term effects from intense UV exposure:

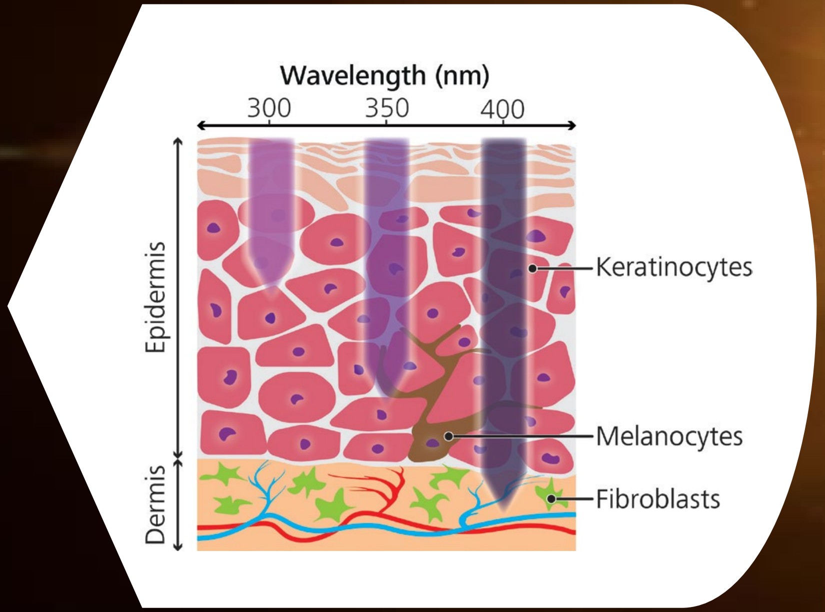
- Corneal burn (photokeratitis)
- Conjunctivitis
- Sunburned eyelids (erythema)

Long-term effects caused by low level UV exposure:

- Cataracts
- Pinguecula
- Photoaging
- Skin cancer



Long wavelength UVR penetrates deep into the skin, damaging eyelids and causing photoaging.



Early UV Protection
+ Lifetime Protection
= Reduced Risk

The Gap

The Gap

- Think of harmful UV radiation as all of the things that could cause a car accident
- A seat belt is like standard UV protection
  - We have evolved from lap belt to 3 point belts with new materials and feel fairly safe

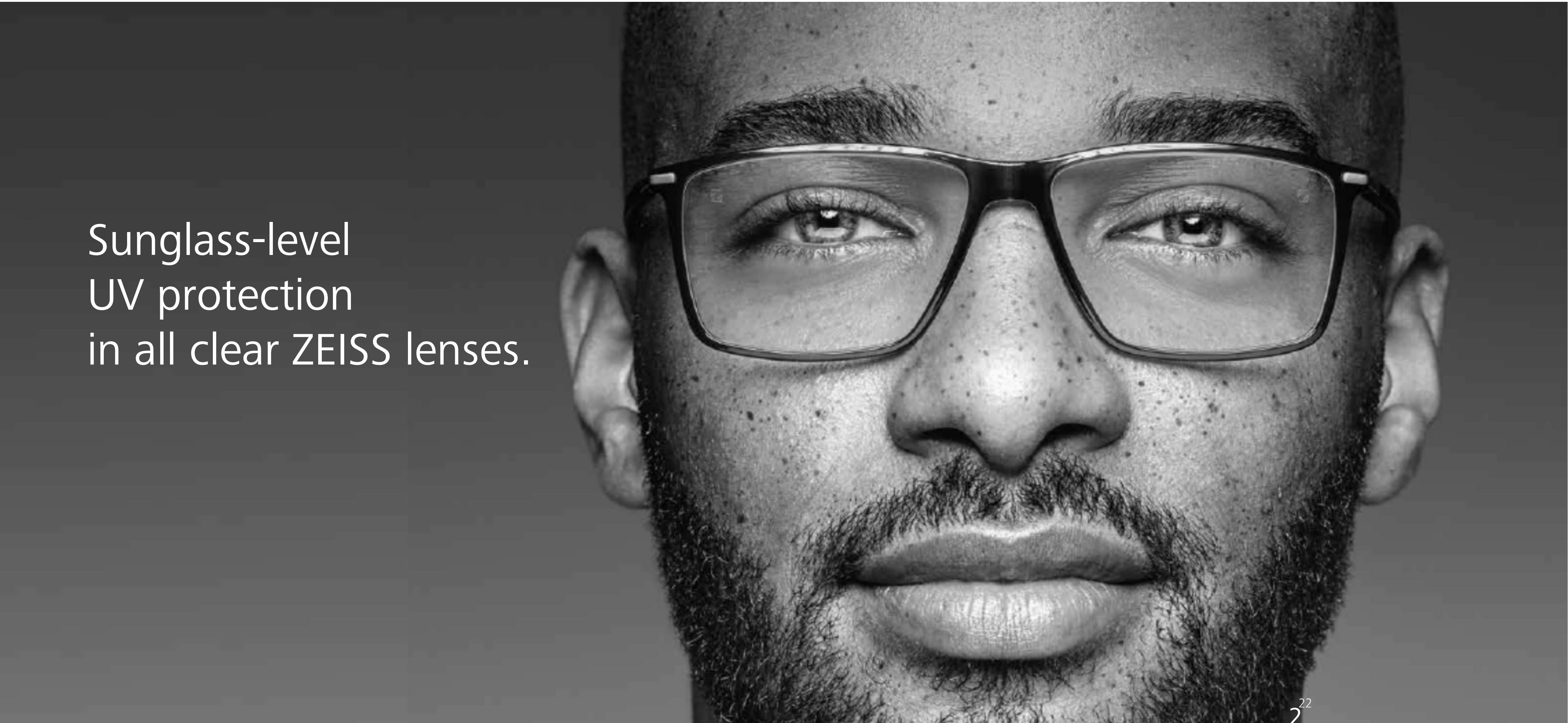
- But when Airbags were introduced we realized the gap that existed in our protection between us and the steering wheel
  - This realization for UV is the gap in protection that exists from UV380 up to UV400

The Challenge

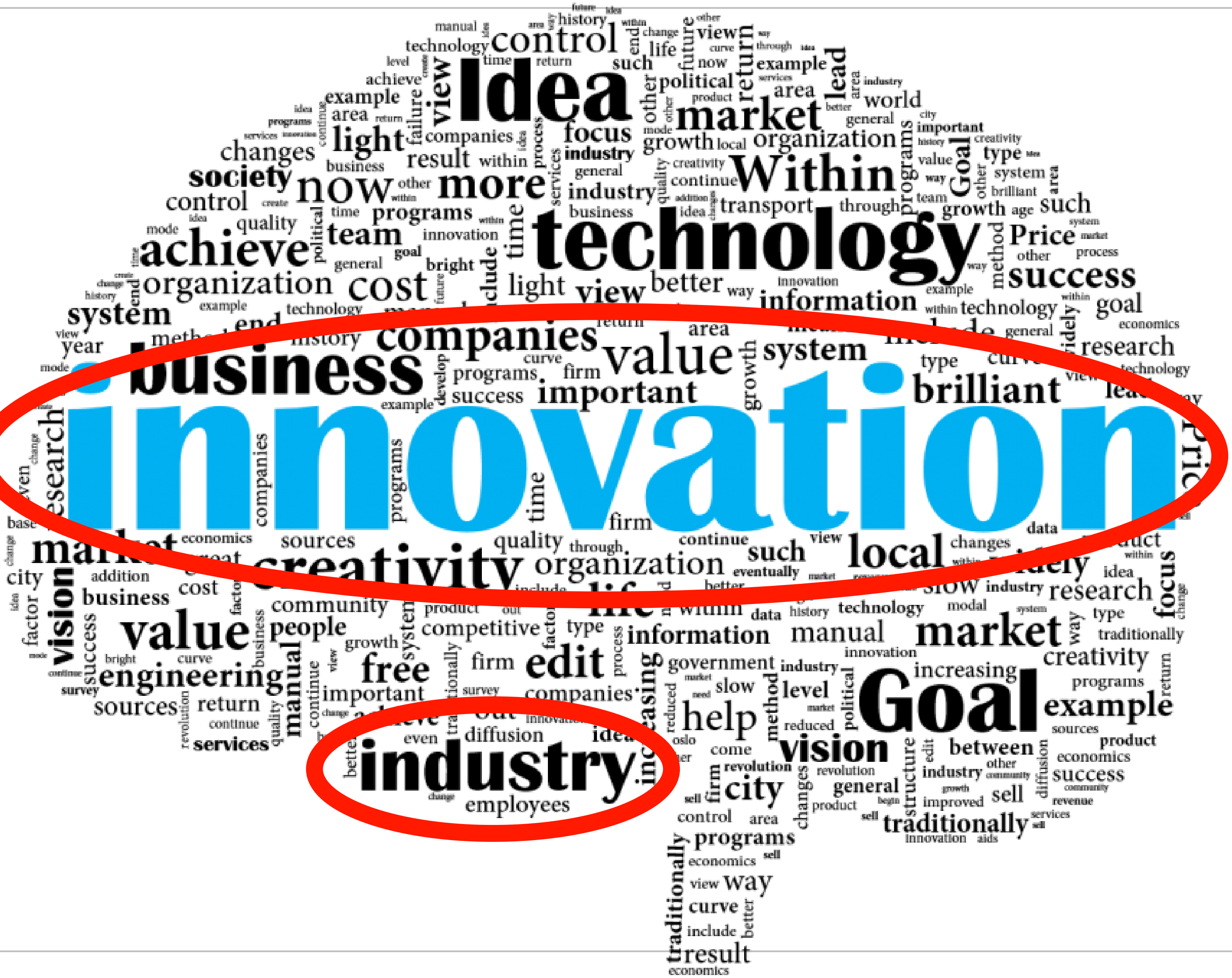
Challenging the Industry to a New Standard of Care

The Solution

ZEISS UVProtect Technology



Industry Innovation not just a New Product



ZEISS is Committed to the Highest Standards

Give patients the highest level of UV protection

- Define a new standard of care by including sunglass-level UV protection in all clear plastic lenses
  - ✓ Complete Portfolio Solution: 1.50, 1.53, 1.59, 1.60, 1.67, & 1.74
  - ✓ Built-in UV protection - Not added at the lab
  - ✓ Provide access to ALL eyeglass wearers
    - ✓ We are not seeking Patent Protection
    - ✓ We are not charging more to ECPs for this technology

Total UV protection meets expectations on Clarity

- **Testing methodology:**
  - **Consumer focus group in Los Angeles**
  - **Consumer focus group in Atlanta**
  - **Indoor and outdoor viewing with lenses**

- **Results:**
  - **No lens appearance difference**
  - **On forced preference, consumers actually *preferred* UVProtect lenses**

Consumers
are willing to pay
up to $49 extra
for clear lenses
with UV 400

(n=600)

But wait there's more…

Direct vs. Indirect UV radiation

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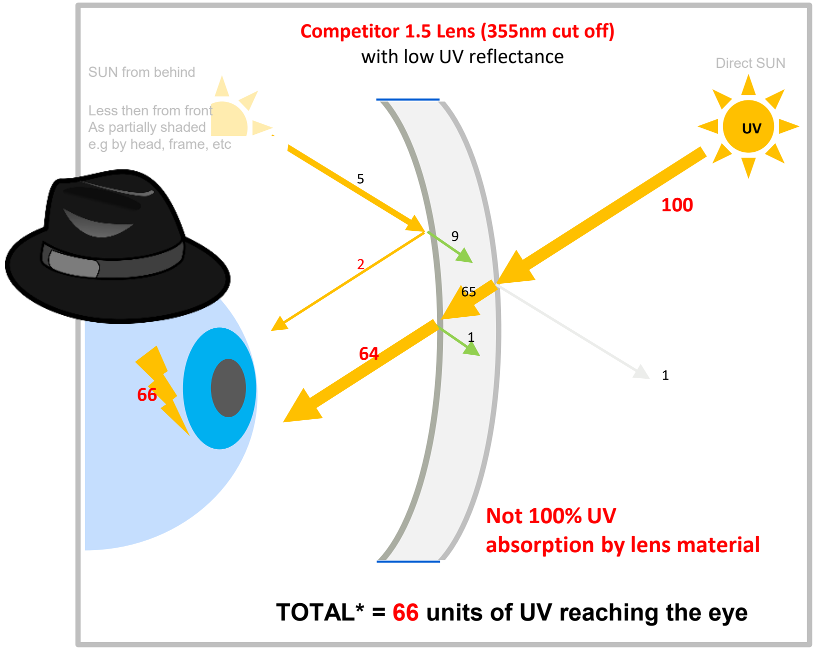

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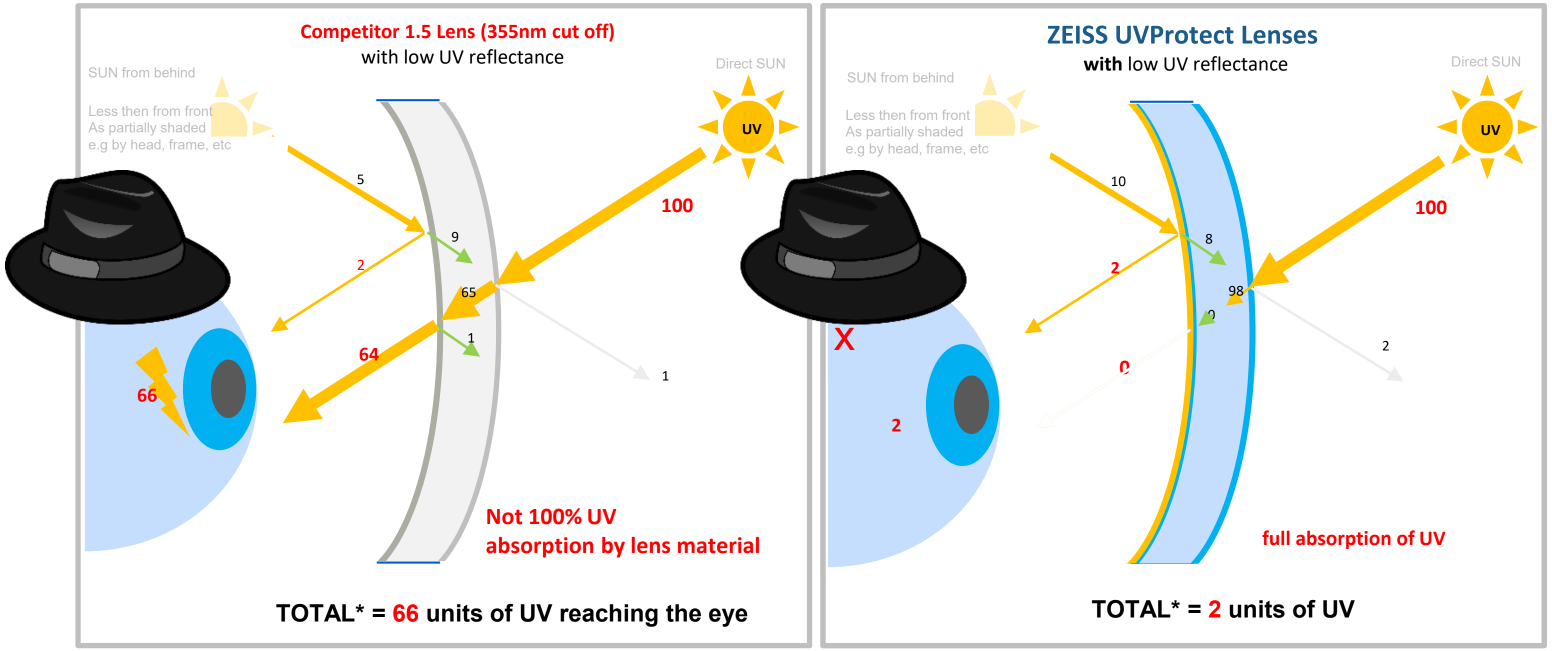

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ZEISS waited for **UVProtect** to introduce Back UV AR,
As **only together this makes sense and protects sufficiently**

The Solution continued…

ZEISS DuraVision Platinum UV

ZEISS DuraVision BlueProtect UV

ZEISS DuraVision Silver UV

ZEISS DuraVision Chrome UV

ZEISS DuraVision Sun UV


Seeing is believing.
ZEISS C-UVProtect
UV Screening Technology- Only from ZEISS
ZEISS

ZEISS C-UVProtect. Make the invisible visible.

Everybody knows about the dangers of invisible UV rays to our skin. But what about our eyes?

...e new ZEISS C-UVProtect, you can actually
...e to patients the amount of UV
... their lenses - without ever leaving

Vision Expo West
Best of Show
Award Winner
2019

It's simple: Under UV light & using a special camera, clear lenses appear visibly dark - if they block UV up to the World Health Organization standard of 400nm. The clearer the lenses appear, the less the UV protection.

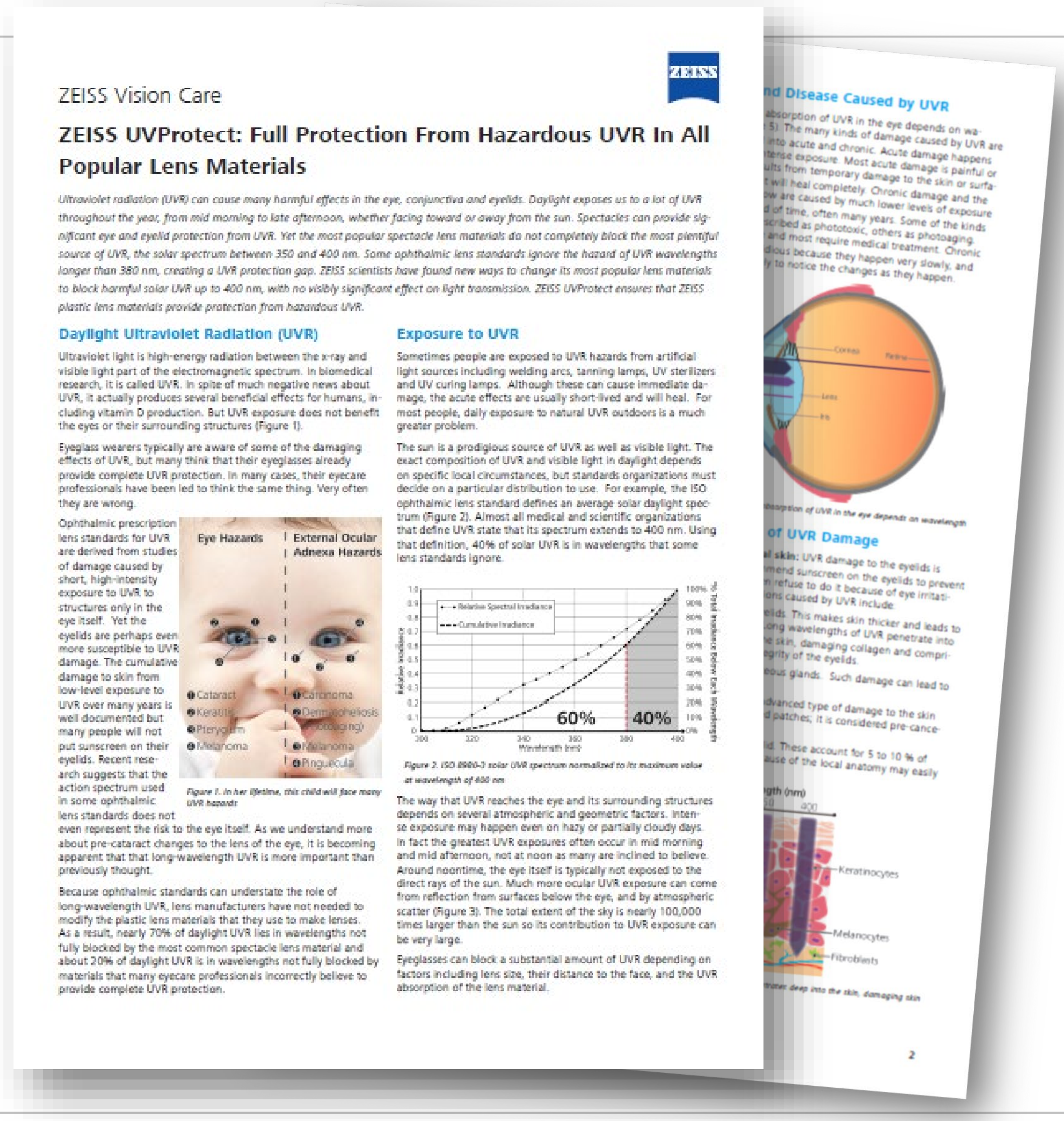
Clear lenses on the ZEISS C-UVProtect indicate incomplete UV protection.

Clear lenses with FULL UV protection will appear as dark as sunglasses on the ZEISS C-UVProtect.

The Challenge

The New Standard

Sunglass-level
UV protection
in all clear lenses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Eye Hazards | External Ocular Adnexa Hazards
Cataract, Keratitis, Pterygium, Melanoma | Carcinoma, Dermatoheliosis (photoaging), Melanoma, Pinguecula

Figure 1. In her lifetime, this child will face many UVR hazards

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Relative Spectral Irradiance
Cumulative Irradiance
60%
40%
Wavelength (nm)

Figure 2. ISO 8980-3 solar UVR spectrum normalized to its maximum value at wavelength of 400 nm

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Backed by science

Supported claims and data

Consumer Preferred

Effortless protection

High Consumer Value

$49 premium for PALs

$39 for SV

Complete Portfolio

Available in all
clear lenses
Including FSV!

A Market Disruption Opportunity

Lead vs. Follow

Still need a reason?

Consumer Research

In a 2019 survey of over 2,200 US consumers:

- **94%** believe UV is a **Bigger** Eye Health Hazard than Blue Light
- **98%** said they would be **UPSET** if their eye care providers did not offer them full UV protection
- **84%** would **STOP** using their current eye doctor if not provided lenses with full UV protection up to 400 nm

ZEISS CE Credits

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CONTINUING EDUCATION

PRODUCT SPOTLIGHT – ZEISS SMARTLIFE LENS TECHNOLOGY

SMARTLIFE: THE EVOLUTION OF LENS DESIGN FOR DYNAMIC CONNECTIVITY

A Complete Premium Lens Portfolio for a Connected, On-the-Move Lifestyle—No Matter the Age

By Deborah Kotob, ABOM

[1 CE CREDIT]

PRO TO PRO
CONTINUING EDUCATION

THE PANE OF INDOOR UV REVEALED

By Deborah Kotob, ABOM

[1 CE CREDIT]

PRO TO PRO
CONTINUING EDUCATION—PRODUCT SPOTLIGHT

TECHNOLOGY AND PERFORMANCE MEET FASHION

ZEISS PhotoFusion and DuraVision Flash Mirrors

By Linda Conlin, ABOC, NCLEC

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MAKING THE INVISIBLE VISIBLE–

Demonstrating UV Protection to Patients

PRODUCT SPOTLIGHT: New screening technology instantly reveals effects of UV rays on eyes and skin

Deborah Kotob, ABOM

[1 CE CREDIT]

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CONTINUING EDUCATION

Product Spotlight – ZEISS Vision Care – UVProtect

UV BEFORE BLUE LIGHT:

Prioritizing Light Protection for the Eyes

By Deborah Kotob, ABOM

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Closing the UV Protection Gap

Ophthalmic Lens Standards vs. Biological Protection Requirements

[1 CE CREDIT]

By Deborah Kotob, ABOM

https://www.2020mag.com/ce/

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