PHOENIX – Precison and Protection for Peace of Mind!

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Product spotlight CE - ABO 1 credit hour – Technical Level II

Course Description

This course is a new technology product spotlight about the HOYA Phoenix lens material, a proprietary Trivex lens material from PPG that is formulated exclusively for HOYA. Phoenix is specifically designed to provide a better visual experience through better lens optics, in an impact resistant lens material. Upon completion of this course, participants will be able to explain the properties of the Phoenix lens material and how it compares to other lens materials in the high impact lens category. Participants will be able to identify target patients for Phoenix lens material and will learn conversation starters to help uncover the patient's vision needs based on their working distances, activities, and tasks. The combining of this unique lens material with lens designs and lens enhancements that make all activities and vision tasks more clear and more comfortable with impact protection built in for peace of mind is a Win, Win for the practice and the patient.

Course Objectives

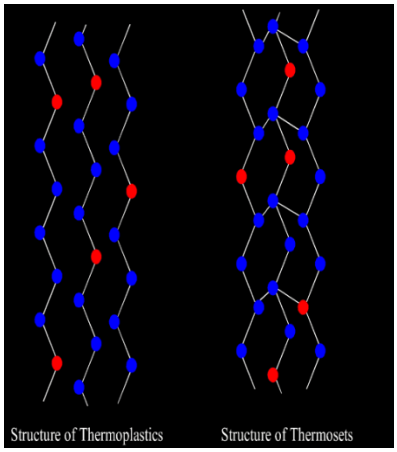
Upon completion of this course, the participants will be able to:

1. Explain the unique features of Phoenix lens material
2. Explain the benefits of using Phoenix over Polycarbonate
3. Be able to discuss combining lens style and enhancement options with Phoenix material to provide the best vision solution
4. Define target patients with an emphasis on **children** and how to start the conversation to uncover needs and offer solutions

We have an extensive array of lens material choices in our toolbox. Our quest is to deliver the best optics, comfort (lightweight), Thin (attractive), Impact resistant (safe) with UV absorption (protection), scratch/chemical resistance (durability) and easy clean (convenience) all in one lens. Next up, we'll learn about a ground-breaking addition to the toolbox, the Phoenix lens material that delivers all of these vital lens features, benefits, and peace of mind.

Lenses are the sum of their combined features. For a lens material to be better in one category but perform poorly in the others does not a good lens make! You will hear acclamations regarding a lens being the lightest, for example, but lightweight in itself is not enough; how impact resistant is it, how thin, how robust and strong, how durable and how well does it perform optically. Can it stand up to drilling and groove? The better the lens material performs across all lens parameters, the better the product delivered to the patient. Patients should never have to tradeoff optical quality for impact protection. Now, you can offer patients a complete package with protection for peace of mind and optical quality for best vision in durability that protects their investment. And, you can combine this unique lens material with state of the art lens designs and enhancements (polarized, computer lenses, photochromic and more) to deliver the best possible vision solutions personalized to your patient.

Introducing the Phoenix lens material

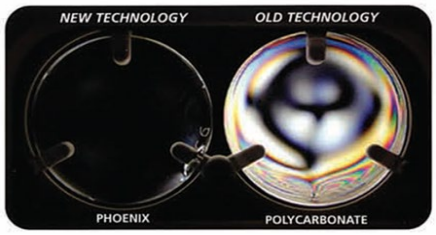


Let's begin with a technical understanding of the Phoenix material – what is it?

Phoenix is a proprietary (Trivex-based) material developed exclusively for HOYA. It provides mechanical strength and robustness to the lens without compromise to optical quality. Phoenix has the same material characteristics as the Trivex material which was the first optical lens material to combine the best of thermoplastics, and thermosets into one unique material, and Phoenix shares this effective combination of these two lens material characteristics.

- With *thermoplastics (polycarbonate),* the chains are independent of each other and can flow freely. Therefore, the material can be reformed.
- With *thermosets (CR-39)* "cross-links" are created during polymerization resulting in a complex, interconnected and permanent network.

This combination results in:

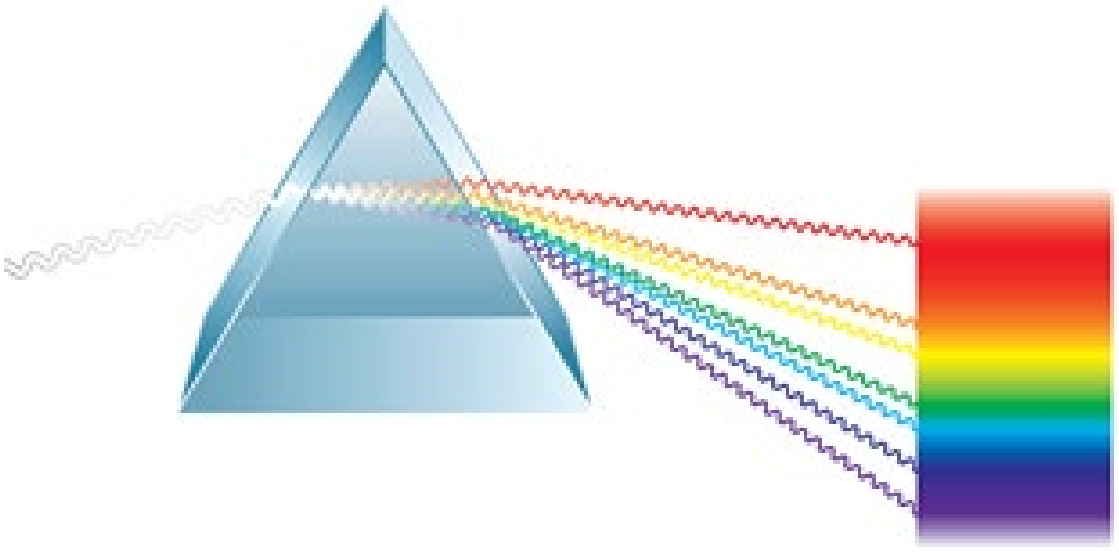


Clear Vision: Phoenix has an Abbe or 'V' value of 43 vs. poly at 30. This is a 30% improvement. Interesting note the human eye has an Abbe value of ~45. With its higher Abbe value, the lens is free of internal stresses that cause color distortion, i.e., birefringence or chromatic aberration (see Fig. 1).

Figure 1

ABBE or 'V' value is a measure of the color dispersion properties of a lens material. Dispersion is when light beaks into its component colors. The ABBE VALUE indicates the amount of chromatic aberration of an ophthalmic lens material. Lower values equate to higher chromatic aberration in a lens. A rainbow is an example of dispersion where white light is broken into the visible colors of light red, orange, yellow, indigo and violet. Notice the red is on the top of a rainbow and violet on the bottom. This is because the shorter wavelength (violet and blue) refract more while longer wavelengths (red and orange refract less).

Many mistakenly think that the name ABBE is related to the lens aberration that occurs with low ABBE lenses but it is actually named after Ernst Abbe (1840–1905), the German physicist who gave us this definition of optical quality in a lens material



Protection: The Phoenix lens material far exceeds FDA impact standards to protect your patient's vision. You are meeting the same industrial safety standards as polycarbonate while **being 60 times** more impact resistant than plastic. This high-impact resistant material has the **additional protection** benefits of 100% UV Protection as defined by ANSI. Phoenix blocks UV up to 395 nm; exceeding ANSI guidelines for UV protection.

Tough: with superior tensile strength, Phoenix material can withstand up to 180 lbs. of pulling force, making it six times stronger than plastic lens material.

Durable: it is both chemical and heat resistant as well as scratch resistant, standing up to the tough conditions. All Phoenix lenses include the HOYA Clarity shield for two times the scratch protection of uncoated lenses. And PNX can withstand up to 10kg of pressure.

Lightweight for comfort: Phoenix is the lightest lens material made today, and lightness is a feature not to be underestimated, it is important to your patient. Lightweight and comfort always rank as one of the most important features to consumers of eyewear. With a specific gravity of 1.1 g/cm3 (polycarbonate is 1.20 g/cm3), Phoenix is up to 19% lighter than standard plastic, and up to 8% is lighter than polycarbonate. And, they are up to 20% thinner than standard plastic.

Specific gravity: is expressed in grams per cubic centimeter (g/cm3). It is the ratio between the **weight** of the lens material and the reference substance, water. When measuring specific gravity in ophthalmic lens material, the density of the lens material is divided by the density of water.

How does Phoenix outperform Polycarbonate lens material?

Many of us have relied on polycarbonate for high impact resistance when fitting children, those with active lifestyles or a person with sight in only one eye but there has always been a trade-off between safety and the optics delivered by the lens material. Let's look at the differences between Phoenix and polycarbonate material.

PNX outperforms polycarbonate in several ways:

1.Abbe of 43 versus 30 for poly - for better peripheral optics

2. Lighter by 8%- compare the specific gravity of PNX at 1.1g/cm3 to polycarbonate at 1.20 g/cm3

3. Blocks UV up to 395 nm (exceeding ANSI UV380 guidelines) while polycarbonate blocks up to 380 nm

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Polycarbonate is a 1.59 index lens material that is thin and lightweight, with high impact resistant. But it has always had one big drawback, poor peripheral optical quality due to its low Abbe value of 30. As ECP's, we need an impact resistance lens for vulnerable groups such as children and persons with vision in only one eye. Opticians embraced the thinness and lightness and impact resistance of polycarbonate but, we always wanted a lens material with all of the plusses of polycarbonate without the drawback of its poor Abbe value that compromises peripheral lens optics. Now we have it with Phoenix whose benefits include outstanding optical quality with an Abbe value of 43 in a thin and lightweight, durable and impact resistance lens. **I, for one, would put everyone in Phoenix material for the security of knowing that their eyes are protected without the tradeoff in optical performance.**

Your Advice Counts

According to a Vision Watch survey of 100,000 respondents, the patients chose Doctor/Retailer recommendation as their number one reason for lens choice.

A tailored solution is a personalized solution. To help patients experience the best vision, no matter the task or activity requires more than one personalized solution.

Just as a lens material is the sum of its components, so is the final lens, a combination of material, design, and lens enhancements. Our mission is to provide outstanding vision solutions to make the patients everyday living better, whether; at work or play or just relaxing in front of their smartphone, tablet, or TV. Let's review some of these life-enhancing and vision enhancing lens combination solutions.

Offer personalized vision solutions based on the visual task and the way we work and play.

Driving or enjoying the great outdoors:

The vision needs: is an excellent vision for quick response time and protection from glare, impact, and sun damage.

The solution:

Phoenix + Polarized = Comfort, safety and protection with uncompromised optics. In my assessment, all sunglasses should be made of high impact material, considering that they are being used outdoors and while driving.

Work or Study:

The vision needs: make extended screen time when working, studying, or researching comfortable and clear. Beat digital eyestrain (DES) and the pain in the neck that PAL wearers experience:

The solution:

Phoenix + Computer lenses (Boost Plano, SV or Computer PAL) + Phoenix + Blue Filter Coating

Computer and working distance lenses when combined with the thin, lightweight Phoenix lens and a blue filter coating will provide the correct power for the distance the patient is from their laptop or PC so that they don't over accommodate or have accommodative stress. Adding a blue filter will reduce the blue light emitted by screens and the lateral and longitudinal chromatic aberration from light dispersion that result in defocused blue light and blue scatter inside the eye that contribute to eyestrain

For emmetropes, clear lenses with a little boost in the reading part of the lens ease accommodative stress. For single vision wearers, a little boost in power in the lower part of the lens gives them a little assist when reading their smartphone or tablet so that again they don't over accommodate and develop accommodative stress. Working or computer lenses for the PAL wearer provide a larger wider intermediate area that is placed in the lens so that the wearer can look straight ahead to view the laptop or PC screen relieving the neck strain typically associated with the chin up posture needed in traditional PAL lenses. They also have better relief from accommodative stress because they can easily access the correct portion of the lens for the viewing distance to their screen.

Enhance the computer lens performance

Coatings to stop internal reflections that reduce acuity in a lens
Filter defocused blue scattered light from screens
Advise heavy device users of the 20/20/20 rule

Define target patients with an emphasis on children

Kids:
Kids need the highest level of protection from impact injury in their eyewear, and they also need a sharp, precise vision for learning development and eye-hand coordination. It's estimated that 80 percent of what children learn in their first 12 years is the result of a vision. During this same period, a child's eyes are the most vulnerable. They haven't yet developed the protection that an adult eye has from ultraviolet radiation. The crystalline lens of children is virtually transparent without the UV and blue light-absorbing proteins of an adult lens. A child's retina is left vulnerable and virtually unprotected. The eyes of a child under the age of 10, transmit over 75 percent of UV radiation compared with roughly 10 percent in adults, ages 25 years and older. The damage that can result from this exposure early in life is irreversible, so we want to start protection young.

The conversation:

"How is Johnny liking school? Is he involved in any team sports? Wearing proper eye protection for sports is essential gear, and it is as important as wearing knee and elbow pads. Even the playground presents plenty of opportunities for a child to experience eye injury.

For this reason, we believe in providing the highest level of protection from impact and UV from the sun in a child's everyday lenses. We want the peace of mind of knowing the lens your child wears are providing the most protection from eye injury and sun damage. The Phoenix lens that we put all children in provides the most protection without sacrificing optical quality. Optical quality is an essential lens property that other impact-resistant materials lack. With Phoenix, there's no compromise in visual quality to gain high impact resistance."

"We only use lenses made with Phoenix material for children because it has the highest level of protection from UV radiation and impact injury. It has unique optical properties, so there is no compromise in vision as with other impact resistant materials. It meets our standard for providing the highest level of protection while delivering the best vision in their glasses."

Or consider adding glare-free lenses and say, "Because children rely on their vision for learning, it is important that they have the most durable, non-glare lenses made with Phoenix impact resistant material. Non-glare lenses can help avoid eyestrain induced headaches and tired eyes caused by whiteboards, computers, and classroom lighting. Also, since children spend more time outdoors, they are exposed to more glare and harmful UV rays. I recommend lenses that absorb 100 percent of the harmful UV rays. They are also available in photochromic lenses that change to a sunglass shade when your child goes outdoors and then rapidly change back to clear when indoors. The kids love the magical way the lens changes when exposed to the sun."

A person with vision loss in one eye

It is our duty as ECP's to ensure that we put patients with sight in only one eye in the most impact resistant lens material.

The conversation:

"Mrs. Ranger we need to protect your good eye, so we are making your glasses with the Phoenix lens material. It is a lens with the highest protection from impact injury, and you won't have to sacrifice visual clarity as this lens has outstanding optical properties. As a bonus, this lens material also protects your eye from harmful ultraviolet radiation. Most of us know that the sun can harm the skin, but many don't realize it can harm the eye."

Anyone who drives

Anyone who drives can potentially experience injury to their eye in the event of a collision from flying objects. When you combine this protection from projectiles in the event of collision with the protection from blinding polarized glare, the Phoenix with Coppertone lenses is a high-performance lens combination that is one of the best investments your patient will ever make in in their vision and eye protection. Blue light protection (check), UV protection (check), Impact injury protection (check), Blinding Glare protection (check). With this lens combination of benefits, you will help the patient protect their sight, increase their comfort, and improve the clarity and sharpness of their vision while driving.

The conversation:
It's important that your sunglasses have your latest prescription when was the last time you updated them? We recommend polarized lenses in high impact material for driving and outdoors. Sunlight is a hazard to your eyes just as it is to your skin, and when driving bright light can lead to glare that interferes with clear, safe vision, polarized lenses protect both. The bonus is that you will not only see better, but your eyes will be comfortable and protected from impact injury. Let me show you a demonstration of how polarized lenses block blinding glare.

Active lifestyle
Close to 50% of us over the age of 6 are active outdoors. The active willingly invest in protection for their eye's once they're aware of the need. Whether biking or hiking or playing at the beach, enthusiast

appreciates the security of knowing their eyes and other children's eyes are protected from impact injury and UV radiation.

The conversation
Sandy, how much time do you and your family spend outdoors? Because of the time you spend outdoors, I want to make sure that you are aware of a few things that you can do relative to eye health and protection.

In Summary:

PNX is ideal for active lifestyles, sports enthusiasts, children, and for anyone where eye protection is paramount, such as the patient with vision in only one eye. Phoenix offers the perfect combination of benefits for almost any patient with any lifestyle; The lightest lens material available today • Twice as scratch resistant as polycarbonate • 60 times more impact resistant than standard plastic, exceeding FDA impact guidelines • Abbe value of 43 versus 30 for polycarbonate and exceeding ANSI UV380 protection guidelines. PNX material is elastic and exceptionally strong, heat resistant up to 90ºC and chemical resistant; it is durable enough to withstand the impact of a 1kg steel ball dropped from a height of 1.20m. Designed for everyday use, PNX 1.53 offers eye safety and peace of mind in our unpredictable lives.

Hoya's premium PNX 1.53 lens material fulfills our quest for a lens with all of the desired features for acuity, comfort, and protection in one material

- Optimal **protection** from impact injury for the eyes
- Optical performance/quality for **excellent vision**
- **Protection** from UV rays
- **Comfort** and **Aesthetics** due to its thin and lightweight material properties
- **Peace of Mind** knowing that the eyes are protected without compromising on visual performance

The ECP and the patient will have peace of mind when Phoenix lenses are dispensed. Protection and clarity in a lens are not just for children and the active; it's for everyone, every day!