New Product Spotlight, Sensity, Light Reactive Lenses

See the Light, HOYA Sensity, all new light reactive lenses
By Mark Mattison-Shupnick, ABOM

Objectives
1. Understand the Sensity approach to photochromic lenses
2. Learn light reactive lens technology for wearer advantage
3. Know how to communicate the effectivity of light reactive lenses for all patients and patient conditions

Course Description
Light reactive lenses are an important patient benefit and one that is still underserved; after all, the penetration of photochromics is only about 20% of all lenses sold. From Best Practices, Spectacle Lens Management, the best independent practices have as many as 35% of all their patients in photochromic lenses. Think of your practice and the opportunity to increase sales. After all, with great light reactive lenses, the opportunity is one of just demonstrating and teaching the benefits. Use this course to understand a new photochromic technology improving on a proven science. Who benefits? The patients do.

Script, New Product Spotlight, Sensity, Light Reactive Lenses

See the Light, HOYA Sensity, all new light reactive lenses
By Mark Mattison-Shupnick, ABOM

1. See The Light, Introducing HOYA Sensity, an all-new light reactive lens.

My name is Mark Mattison-Shupnick and I am the education director at 20/20 Magazine.

2. This is a 20/20 e-learning narrated presentation and is a new product, spotlight.

It details an innovative photochromic technology and is an approved ABO seminar.

Listen and watch, answer the 20 questions successfully with an 80% or greater and 20/20 Magazine will forward your pass to ABO directly for credit.

This course is supported by an educational grant from HOYA Vision Care N.A.

3. The objectives are straightforward.

1. let’s understand the Sensity approach to photochromic lenses.
2. Light reactive lens technology provides advantage for wearers.

Finally, the real difference is 3. How, to communicate the effectivity of light reactive lenses, for all patients and patient conditions.

4. Navigating these slides is easy. Follow along with me as I describe the parts of the screen that you can use.

1. Are the slide Titles
2. Click on the tab Notes and you can read along with the narration
3. Is the Slide itself
4. Adjusts the Volume
5. Is Pause or Go
6. Shows slide and narration Progress
7. Allows you to Review at the slide again
8. Goes back to the Previous slide
9. Move to the Next slide
10. contains downloadable reference charts for office efficiency

5. The photochromic lens category is an important one and selling light reactive lenses makes for eyewear that fits all a person’s needs when only one pair of glasses are possible.

6. No matter the activities, the need for light reactive lenses adds comfort and convenience. Here, if she leaves her desk to talk or read when on the terrace, these lenses have all the built in technology and sophistication to do what patients want automatically. They’re light reactive.

7. Let’s begin by understanding the characteristics that provide patient benefits.

8. As new technologies for professional eyecare providers are invented, it makes sense to describe the steps (there are 5) and learn the process names to help you, the ECP learn the advantages for the patient or consumer.

1. **Stabilight Technology** ensures consistent performance in different climates and seasons. In this new product, there is less sensitivity to temperature, altitude and the source of sunlight.

2. **Deep, natural colors** provided excellent contrast and glare reduction using a new photochromic dye mixture.

3. Life expectancy is ensured by exceptional optical quality and durability due to **Photochromic Precision Technology**.
4. Next, with its semi-finished blank availability, you can order a complete free-form product range in PAL and single vision.

5. Last, there is compatibility with HOYA premium coatings

As a result, if you agree that the technology is what works for your practice, availability, ordering and delivery can meet everyone’s expectations.

9. This new product is a mixture of three development targets. 1. A new approach to the way that photochromic lenses change density, 2. Make the color achieved a subtle and trend worthy change and 3. Ensure lens durability that meets every patient’s requirement and expectation.

First, let me describe the components of Stabilight Technology, a new approach to photochromics.

For consumers, they are interested in lenses that get dark quick. This technology darkens to full density in about 30 seconds.

Fade back and actual lens clarity are also important. Teach patients that lenses clear in about 5 minutes.

What about the ways that these lenses protect eyes?

10. You know, all photochromic are 100% UV protective.

UV triggers the photochromic reaction but UV is variable by altitude and, the photochromic dyes used in lenses have some temperature sensitivity.

Stabilight Technology has improved color and density because it’s less UV and temperature sensitive.

Compare a skiing environment, with high levels of mountain UV and low air temperatures makes for very dark lenses as appropriate, to a dry, dusty desert with high temperatures and less UV so lenses won’t get as dark as needed.

Dark lenses on ski slopes were very dark and of course take longer to clear. In hot sands, color change was for some not dark enough but cleared quickly.

Stabilight Technology makes for lenses with less UV and temperature sensitivity.

11. Teach patients that photochromics are 100% UV protective. How can you know that?
Here are Transmission curves of two lenses. The blue line shows a standard plastic lens without more than the standard UV absorbers added. Remember, UVB is defined as radiation from 280 to 315nm and UVA from 315 to 380nm.

This shows that, at 380nm, half the UVA is transmitted while a Sensity plastic lens absorbs virtually all the UV to 380nm. This makes Sensity plastic virtually 100% UV absorptive unlike ordinary plastic lenses.

12. Lens materials also add additional absorptive properties. Like all photochromic high index lenses, this 1.6 high index Sensity lens absorbs 100% of the UV radiation in both the clear and darkened state.

In addition, there is absorption of the blue wavelengths. While all wavelengths produce potentially harmful radiation, the ISO has defined the blue light hazard peak as 440nm.

In this graph, one can see that in the faded state blue light is reduced about 7 percent while in the darkened state 80 to 88% of the hazardous radiation is absorbed.

This is important since most consumers don’t understand that the hazard of blue light is accumulated over a lifetime and that blue light is a large part of sunlight so protection at all times outdoors is required. For digital devices and the way in which we use them, one must also protect for the potentially hazardous effects of blue light.

13. What are the reasons that patients wear photochromic lenses?

In a HOYA commissioned study, completed by Millard Brown, a company that works with 90% of the worlds leading brands to help define brand purpose and engage consumers, they found these answers to the question, “Why do you wear photochromics?”

Half of the respondents cited sunlight sensitivity; glare reduction, and UV protection while in one pair of glasses. This shows that protection from the sun and convenience drives a purchase. Did you know that our sensitivity to glare almost doubles every decade of life.

Now this doesn’t mean that a pair of quality-polarized sunglasses isn’t needed, it suggests that this meets the patient’s need when only one pair of glasses may be possible. They might prefer two pair. It also suggests that this is the perfect solution for clear eyewear since they meet so many more of the ways that patients wear their glasses.

14. So to review, Stabilight Technology manages light, UV and temperature reactivity for consistent photochromic performance to swiftly darken to a category 3, sun lens tint outdoors, and revert faster to full clarity indoors.
Meanwhile, UV and HEV protection is maintained at a consistently high level.

15. Is there a difference in color density of the grey or brown lens choices?

This Transmission graph shows that both the grey and brown Sensity lenses, in cold temperatures react the same. There is a delta of about 2% in the darkest state. That means that it’s easy to set a patient’s expectations when either a cosmetic or fashion choice is made when choosing the color of the lenses or they have a personal preference for grey or brown lens filter color.

16. One of the targeted improvements for photochromic technology is to of course increase the darkening of photochromics in warm weather. I often hear patients describe that they’d prefer lenses to be darker and, darker sooner.

Here are two sets of graphs – they show how new Sensity gets darker than their predecessor Suntech.

At 35°C (95°F) the lower the graphs’ line the darker the lens. Look at the brown lines and the brown arrow. That shows the significant improvement in reducing the transmission of light.

The same is true for the grey lenses shown by the grey lines, the new darker lens at 95 degrees shown by the grey arrow.

17. So, if we were to summarize Stabilight improvements we can say that these lenses are 20% less temperature sensitive; they darken up to 45% darker in the first 90 seconds. Then, they fade back up to 23% lighter after 1 minute.

These numbers are of interest to use as professionals – the best way to understand the actual effect is to wear them yourself so that a discussion that’s first hand experience delivers the best and the most personal of recommendations.

18. Lens color is also vital for performance, the way that the lenses ‘see’ and their appeal, how you’re ‘seen’.

It is the color (hue) and its density (darkness) that results in glare, and sun sensitivity reduction. The right mixture of photochromic dyes is critical. When exposed to UV radiation, they darken evenly and maintain the same lens color (hue) throughout the darkening phase.

These are the kinds of words that you would use with patients.
Lens color must also match frame color trends and good fashion sense. You can choose either lens color, here when the density is so close provides virtually the same performance in both brown and grey.

Either color, grey or brown, provides a saturation of up to 35% deeper color tone so the result are lenses that darken to category 3 sunlenses. Category 3 sunlenses have between 8% and 18% transmission, useful in strong sun and very bright conditions outdoors, especially when light is reflected off buildings and objects around you.

19. Consumers, our patients also expect that the lenses will be clear to wear indoors, darken quickly and fade back as fast as possible.

How clear is clear?

20. Here, lenses were photographed in their clear, fully faded state.

Lens 1 is a non-photochromic high index lens.

Using the same indices of lens and placing all the lenses flat on a white background we see their inherent clarity. Number 2 is a Sensity brown lens and 3 is a Sensity grey lens along with lens 1.

Remember that lenses placed flat on a white surface will add some reflection and appear to have very slight color.

We can see that the Sensity lenses are all about the same clarity. When place in frames, in the as worn position, color is less and appears clearer.

When patients demand clear lenses for indoors, this is what they mean.

21. Here’s another performance graph comparing previous HOYA Suntech Grey and Brown to Sensity.

At 23°C (~73°F), you can see the significant downward shift in darkness. That’s good.

Brown lenses get 85% dark, Grey about 88% dark. These are certainly category 3 sunlenses in these conditions.

22. Next, Part 3, often opticians ask of the lenses construction.

In a process called Photochromic Precision Technology, the Sensity layer is applied. Spin coating is used and that allows the application of very precise layer thinness since the spin speed and lens position can be controlled.
This provides micron thinness accuracy in a solution with superior adhesion and durability.

Look at the lens’ cross-section. Starting from the top down, the top of the AR is water and oil repellent layer, then the AR stack and a hard coat layer. This extremely durable and hard scratch coat ensures the durability of the AR.

The red arrow shows the position of the photochromic layer placed on the front surface of the lens substrate itself. This can be any of the materials available for Sensity.

On the lens’ back surface, again the hard coat, AR stack and repellent top layer matching front surface properties.

23. Let’s look at the application process of the spin coated photochromic layer in more detail. Follow along with me.

1. Onto the lens, a primer layer is applied. This layer is an adhesion layer, very sticky to the lens, very sticky to the next layer on top of it.

2. The primer layer is dried. Again, spin coating ensures accurate control of the coating thinness and its uniformity across the entire lens surface.

3. Next, the photochromic layer is applied using the precision of this spin coating process.

4. Shows that the photochromic layer is pre-cured using UV, a way of initiating polymerization i.e., getting the individual coating molecules to begin the linking process. This is a clever process used for hard coats made sensitive to UV. This is only a partial curing, of about 2 minutes that starts polymerization setting the coating’s matrix.

In step 5., the photochromic hard coat goes through a final cure in an annealing oven at 80-100°C to fully harden and finalize coating polymerization.

24. Step 4, like free-form, where different lens designs can be applied to the same lens blank (clear, polarized, different index, etc.), The photochromic chemistry using spin technology can be applied to a variety of HOYA lens materials, indices and surface designs.

This new photochromic is compatible with premium AR and consistent with the performance expected.

So, this spin technology is currently applied to any continuous front surface lens blank i.e., free-form progressives, office-type and of course, single vision lenses are possible.
In addition, it makes stock, finished SV lenses also an option.

25. To review, the 5 steps used to create new Sensity, light reactive lenses are:
   1. **Stabilight Technology**, for consistent cross-climate performance
   2. Delivering **Deep, natural color** choices for excellent contrast and glare reduction
   3. Using **Photochromic Precision Technology**, for optical excellence and prolonged durability
   4. In a **full range of free-form, office and single vision options**
   5. All with **HOYA premium AR coatings**

26. To know the exact lens design and material availability, use this chart, also in the resources tab.

   Across the top shows lens materials. Plastic, Phoenix, poly, 1.6 and 1.67

   The left hand column shows available HOYA lens designs. Customized free-form, optimized iD, Array, Sync, BKS, iQ and aspheric designs. For details about each of these lenses, see the courses that describe HOYA lens designs in detail at Empower U.

27. AR makes all lenses better and this reference table, available in the resources tab.

   First choose the AR that works for this patient (first arrow across the top).

   Next, choose the material of choice, I’ve added red arrows pointing to materials by index and boxed each with dashed lines.

   Down the left hand column, are listed the lens designs available by AR.

   Keep this reference handy at the dispensing table.

28. What have we learned?

   Understanding a lens’ benefits help improve a patient’s understanding.

   Let’s go through them one at a time.

   Time to Darken, Fade Back to Clear: Fast, fast, fast to darken and fade.

29. Colors, uniformity of density and the ability to darken from clear to a category 3 sunlens makes for a most convenient lens.

30. Today’s photochromics, especially with the best in AR are extraordinarily durable.
31. Like all photochromics there is, of course some temperature sensitivity but less than ever before.

32. Sensity lens chemistry is triggered by UV radiation; the more exposure, the darker the lenses.

As a result, they absorb 100% of the ultraviolet radiation.

33. And, like all photochromic lenses, they reduce blue light, i.e., HEV radiation in their darkened state.

To further improve HEV protection, add a new blue light attenuating AR, like Recharge. It reduces the harmful blue light entering the eye by improved reflection of the potentially harmful blue violet wavelengths.

34. Last, (the arrow on the left) like all photochromics, darkening in the car is poor. Since darkening requires UV and the windscreen absorbs UV, there is only a small amount of darkening.

However, as I always say, “clear lenses don’t darken in the car either!” so I always recommend light reactive lenses for their everyday convenience, as a primary pair of glasses. Think about it – isn’t it better to have a pair of glasses that work in all kinds of conditions?

Last, as ECPs, (arrow on the right) please wear them yourself and describe your own experiences. That will make the most telling of impressions for patients.

35. Let’s summarize this lesson,

Sensity lenses use Stabilight Technology to ensure temperature, climate and season consistency of performance.

That means improved contrast and glare reduction in deep natural sunlens colors.

Be able to deliver to patients, exceptional optical quality and durability through precision photochromic technology, in a complete product range, all with premium AR coatings.

36. Congratulations on completing this product spotlight course on new HOYA Sensity, Light Reactive Lenses.

Click on the exam if you are in Empower U, the HOYA learning website and complete the 20-question test. Download and print your certificate.
For ABO credit, log into your account at the Opticianry Study Center at 2020mag.com/CE, review the questions and take the exam. Jobson notifies ABO directly of your pass (80 percent or greater) there’s nothing more for you to do. Thanks again.