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Real-world Experience by Laboratories and Eyecare Professionals Reveals Trivex Offers More Than a Triple Benefit

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Introduction

The first new optical monomer of the 21st century, Trivex? tri-performance lens material from PPG Industries, Inc., offers the unprecedented combination of excellent optics, impact resistance and light and thin qualities in a single material.

The result of breakthrough chemistry adapted from the defense industry's "visual armor" – developed for helicopter canopies – Trivex material is extremely durable, yet provides excellent optical quality. The material has an Abbe value of 43 to 46 and is impact resistant to the highest industry standards. With high strength, lenses made from Trivex material can be ground thinner than many other lenses to provide cosmetic and weight benefits. Additionally, with a specific gravity of 1.11, Trivex material has a very low density, making it the lightest commercially available lens material.

Lenses made from the material first became available in the spring of 2001. Eyecare professionals had the chance to see for themselves the triple-performance of the new material and its benefits for their patients and their practices. To gain insight into their experiences a year later, PPG commissioned two research studies in spring 2002: a mail survey of top independent optical laboratories and two focus groups of eyecare professionals. The focus groups were conducted jointly with Benedict Optical, Inc., a Hoya Optical Laboratory, which identified the 17 focus group participants based on high levels of experience selling Hoya's Phoenix lenses, made from Trivex lens material.

Key Research Revelations:

The research confirmed that labs and eyecare professionals recognize the unique triple benefit of Trivex material and its advantages for their patients, but it also provided more surprising revelations:

- Eyecare professionals reported that their patients recognize and even comment on the excellent optical clarity of lenses made from Trivex material.
- Patients place a premium on light weight over the thinness of lenses, and value the light weight of lenses made from Trivex material.
- Although the utility of lenses made from Trivex material for safety applications and children's eyewear has always been known, laboratories are recognizing the benefits of Trivex material's durability in terms of frame compatibility and are recommending it to eyecare professionals as an excellent choice for drill-mount applications.

High Satisfaction Among Eyecare Professionals, Patients

Prior to the discussion portion of the focus groups, the participating eyecare professionals were given a written survey so PPG could statistically quantify their satisfaction levels with Phoenix lenses made from Trivex material. They were asked to rate their satisfaction with various aspects of the product on a one to five scale.

The professionals were highly satisfied with the lenses across the board, and, predictably, were most satisfied with the impact resistance, light weight and optical quality of the material (Figure 1).

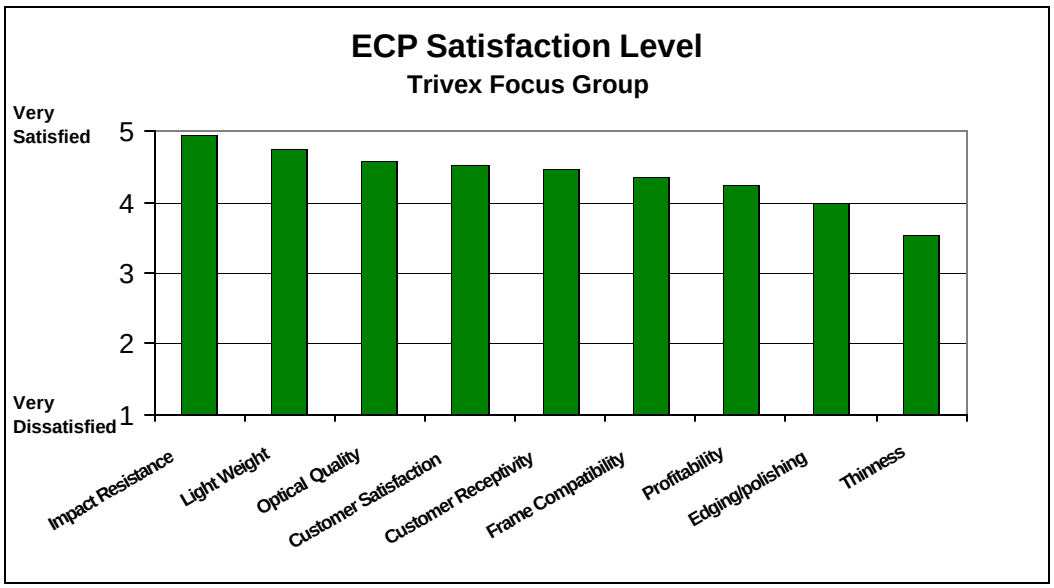

Figure 1

The next two highest rated items, customer satisfaction and customer receptivity, are especially noteworthy since they reflect patients' experiences with the material.

Previous research conducted by PPG explored lab and eyecare professionals' potential satisfaction with the physical properties of Trivex material and found high expectations for the material's success based on these properties, so confirmation of high satisfaction with these features was expected. But with the spring 2002 research – for the first time – the participants had "real-world" experience and could offer first-hand observations of the material's performance and its benefits or drawbacks for their customers. The high satisfaction levels reported for customer satisfaction and receptivity demonstrate that patients also value the unique properties of Trivex lens material.

When eyecare professionals in the focus group entered into roundtable discussions on what patients valued most in their lenses made from Trivex material, two attributes surfaced again and again: optical clarity and light weight.

Many of the eyecare professionals reported that their patients commented on the clarity of their lenses, especially if they were previous wearers of polycarbonate lenses.

While eyecare professionals know that Trivex material (Abbe value 43-46) has better optics than polycarbonate (Abbe value 29-30), they were surprised when patients commented on the improved clarity and lower distortion on their own.

The eyecare professionals were also pleasantly surprised how often patients commented on the light weight of their lenses. Some even asked, "Are you sure these are my glasses?"

Once the eyecare professionals realized how valued this feature was by patients, many of them began offering lenses made from Trivex material to patients that would normally be candidates for high-index lenses. While, in higher prescriptions, high-index lenses can be thinner than lenses made from Trivex material, high-index lenses can also be significantly heavier on many identical prescriptions. When explaining this to patients, many of the eyecare professionals in the focus groups said their patients were likely to value the lighter lens over the thinner lens.

The Impact of Durability

Because Trivex material is so durable, it was expected that eyecare professionals and laboratories would be highly satisfied with the impact-resistance of the material, making it a logical choice for lenses that require high impact-resistance, such as children's lenses or lenses for safety applications. It was not anticipated, however, what widespread popularity the material would have for drill-mounts.

In the mail survey, labs were asked how they positioned lenses made from Trivex material within their product offerings. The largest response was for drill-mount lenses (27 percent), indicating that labs recognize the value of the material for this application. Trivex material has high tensile strength, so it maintains its structural integrity during the

drilling process and well after. That means low breakage during processing and from stress during patient use.

Finding Multiple Niches

With wide-ranging benefits, Trivex material has advantages for multiple applications. To gauge where Trivex material was being positioned within the lens material market, PPG asked the eyecare professionals participating in the focus groups what lens materials were being replaced by Trivex material in their practices (Figure 2).

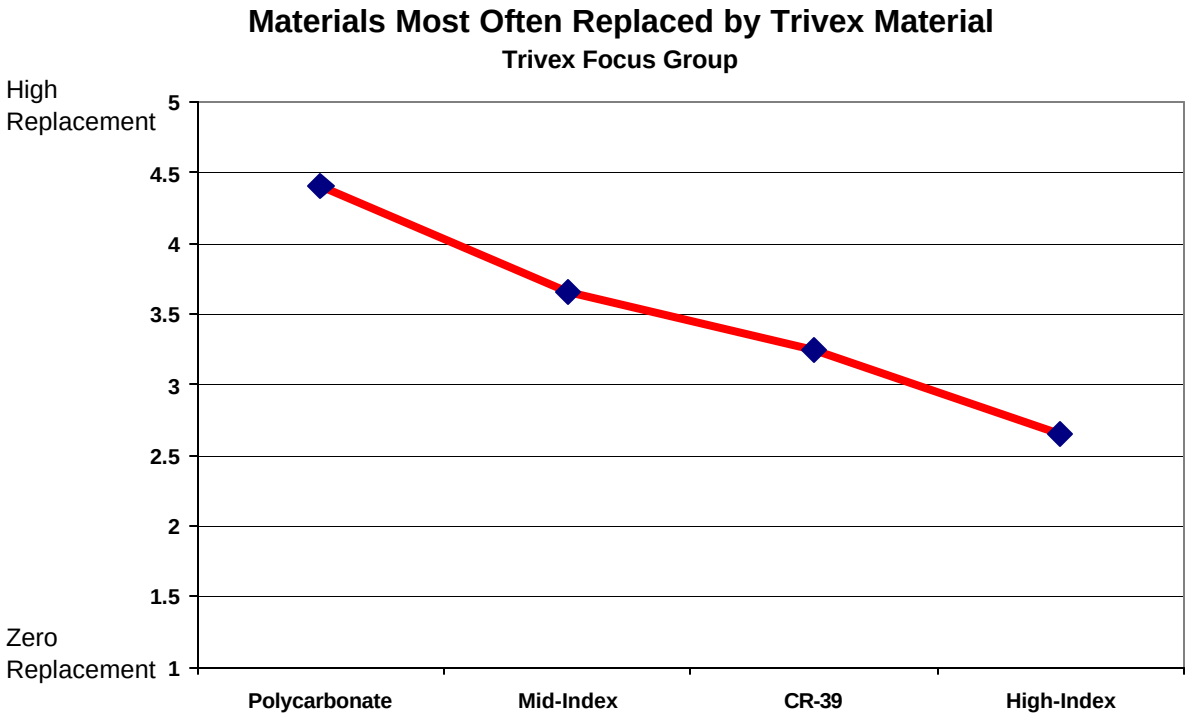

Figure 2

Although the findings show that Trivex material most often displaces polycarbonate, they suggest that Trivex material is also a significant and viable alternative to mid-index, CR-39 and even high-index lens materials. Trivex material, after about a

year on the market, is finding multiple niches among existing materials, instead of replacing one all together, as might have been anticipated.

This conclusion is supported by the results of the lab survey, which indicate that labs perceive Trivex material as an alternative to other materials in a similar distribution (Figure 3).

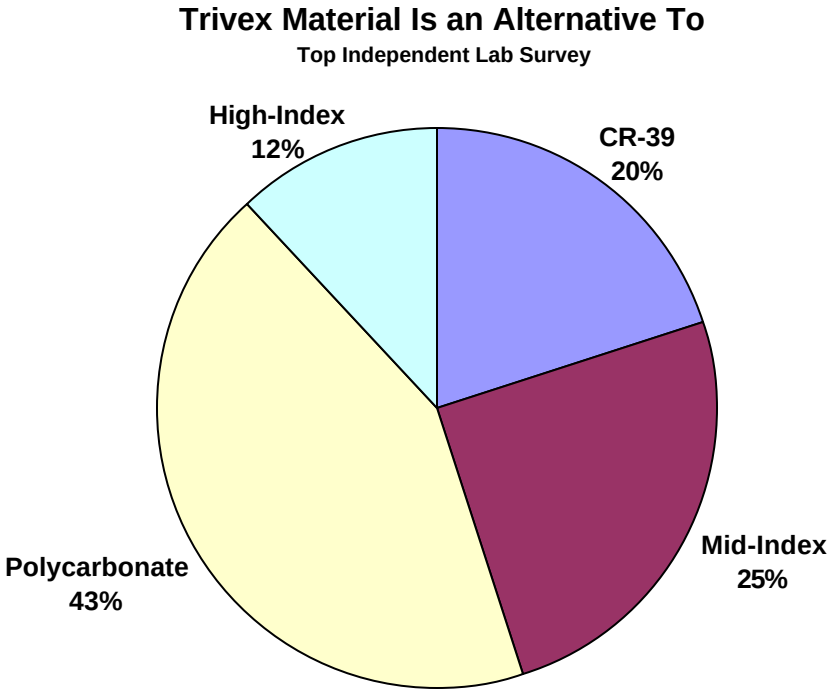

Figure 3

"Go-To" Material with Multiple Benefits

With high satisfaction among eyecare professionals and their patients, it's no surprise that Trivex material is a unique and growing category of lens material.

As a material recognized for its optical clarity and light weight in addition to durability, Trivex material is a viable alternative to mid-index, CR-39 and high-index lens materials as well as polycarbonate.

While it was expected that the material would find a niche as an impact-resistant lens that is optically superior to polycarbonate, “real-world” findings indicate that labs, eyecare professionals and consumers have multiple reasons to select Trivex as their material of choice. As the preferred choice for drill-mounts and a material recognized for its light weight and excellent optics, Trivex is becoming the “go-to” material to fill multiple patient needs.

Valued for its unprecedented triple benefit – and more – Trivex material is demonstrating its great versatility and potential for continued growth in the lens material market.

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