

# Akreos IOLs

After their successful use in Europe and Canada, these lenses may soon be approved in the US.

BY ROSA BRAGA-MELE, MED, MD, FRCSC

**A**n increasing number of technologies in cataract surgery are launched internationally before making their way to the US market. One such example is the Akreos family of lenses (Adapt AO, Adapt AO with Violet Shield, and the Micro-Incision sub-2-mm Adapt AO lens; all from Bausch & Lomb, Rochester, NY). These lenses are aberration-free, aspheric, hydrophilic acrylic IOLs with a unique 360° square edge. Combining Sofport AO's (Bausch & Lomb) aberration-free aspheric design for reduced dysphotopsia, low posterior capsular opacification, and high patient satisfaction with four square haptics and a steep anterior surface to minimize glare, the Akreos offers a versatile acrylic platform. This article provides an overview on this family of IOLs.

## ADAPTABILITY

The Akreos Adapt AO and Sofport AO IOLs have aspheric anterior and posterior surfaces that induce no spherical aberration, because they distribute power uniformly from their center to their edge. Like the Sofport AO lens, the Akreos IOL is neutral to the cornea and therefore suitable for patients regardless of their corneal shape; even patients with preexisting corneal aberration, previous LASIK treatment, or keratoconus are candidates for this lens. The Akreos' even distribution of power allows the IOL to work independently from the imperfect alignment of the natural eye, and it is therefore less affected by decentration—thus providing more predictable refractive and visual outcomes, even in patients with zonular weakness or eccentric pupils.<sup>1</sup>

The Akreos IOL has four contact points in three dimensions to fit the capsular bag. It is the first lens to adapt automatically to differently sized eyes. The lens offers other unique design elements, including a steep anterior surface and moderate refractive index of 1.458 (hydrated), to minimize glare. It has four haptics for an anterior/posterior square edge, which offers a 360° posterior barrier, including the haptic/optic junction.

## HYDROPHILIC ACRYLIC MATERIAL

Akreos lenses are made of hydrophilic acrylic materials that offer incredible elasticity and allow the lenses to be fold-

ed before insertion. The folding method is easy for doctors and nurses, and the lenses may be implanted through small wound assists, which expedite healing times. The Akreos Adapt AO lens may be inserted through a 2.2-mm incision with wound assist, while the Akreos Micro-Incision lens can be inserted through a 1.5-mm incision. The lenses' copolymer composition was developed to provide advanced optical performance without compromising patients' comfort.

## KEY BENEFITS

The Akreos IOLs have not been associated with glistenings or observable microvacuoles (data on file with Bausch & Lomb). In addition, the unique hydrophilic acrylic material used in these IOLs makes them much more resistant to damage during YAG procedures than hydrophobic acrylic and silicone lenses.<sup>2</sup>

There have been no reports of brown deposits on the acrylic Akreos IOLs in uveitic eyes. The incidence is about 38.5 times more likely to occur with hydrophobic acrylics (such as the Acrysof MA60BM [Alcon Laboratories, Inc., Fort Worth, TX] and the Sensar AR40 [Advanced Medical Optic, Inc., Santa Ana, CA]) when compared to hydrophilic acrylics (Akreos or hydrophobic silicone IOLs).<sup>3</sup> One reason for this difference may be that the acrylic is highly biocompatible; it is therefore frequently used successfully in patients with inflammatory conditions.<sup>4</sup> The Akreos IOLs may also be less susceptible to biocontamination and have lower rates of endophthalmitis due to their lower ratio of early adhesion and bacterial density compared with hydrophobic products.<sup>5</sup>

Compared with IOLs that have higher refractive indices (lenses made of silicone and hydrophobic acrylic), the Akreos IOLs induce less dysphotopsia, because their water content helps to minimize glare as well as external and internal reflections.<sup>6-9</sup>

## AKREOS AND THE US MARKET

More than 1.5 million Akreos lenses have been implanted in Europe during the last 3 years. The IOLs' success in the US depends on whether surgeons appreciate the benefits of the IOLs' hydrophilic acrylic material. The Akreos Adapt, and its next-generation Micro-Incision lens for sub-2-mm microincisional surgery, are safe, reliable, and

predictable in terms of their insertion and ocular stability.<sup>10</sup> The 30 patients in whom I have implanted the lens to date, all have shown excellent ocular stability and visual outcomes.

The Akreos Adapt AO IOL is expected to enter the US market this year, pending FDA approval. The Akreos AO Micro-Incision sub-2-mm lens is currently expected to debut in the US in 2008. ■

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