

Hydrophobic Acrylic IOLs

A new generation of these lenses is now available in Europe.

BY KHIUN F. TJIA, MD

Hydrophobic acrylic IOLs have gained significant market share around the world. These lenses are increasing in popularity among ophthalmologists because they offer good mechanical stability, good uveal biocompatibility, and low rates of posterior capsular opacification (PCO).

In Europe, a wide variety of IOL designs made of 25% or 26% water content hydrophilic acrylic materials is available from numerous manufacturers. Hydrophilic acrylic IOLs have numerous advantages. They are relative-

ly easy to manufacture, the raw materials are easy to obtain, the material is highly compressible due to its water content, and their mechanical properties are not temperature-dependent. However, hydrophilic acrylic IOLs are associated with higher rates of PCO formation, and they do not perform as well as the best hydrophobic acrylic and silicone IOLs available today.

Unlike hydrophilic acrylic materials, of which there are basically two types, 25% or 26% water content, it is possible to obtain hydrophobic acrylic materials with a variety

TABLE 1. NEW HYDROPHOBIC IOLs AVAILABLE IN EUROPE

Company	Lens name	Material	Lens design	Loop design	Refractive index	Asphericity	Blue light filter
1st Q	Basis/Special Z	own	one-piece	open Z	1.47	neutral	yes or no
Aurolab	Aurovue	own	one-piece	open C	1.47	no	no
Cristalens	Luxiol	own	one-piece	open C	1.54	aspheric	no
Cristalens	Artis	own	one-piece	four closed loops	1.54	aspheric	no
Cristalens	Siloe	Benz	one-piece	open C	1.54	aspheric	no
Cristalens	Lumen	Benz	one-piece	four closed loops	1.48	aspheric	no
Domilens	Nex Load	Nidek	three-piece	open C	1.52	NS	no
Domilens	Domicryl M100	Anadolu Tip	one-piece	open Z	1.51	NS	no
Hanita	Seelens HP	Benz	one-piece	open C	1.48	aspheric	no
Hoya	i Mics 1	Hoya	one-piece	open C	1.52	-0.18	yes
Medennium	Aurium	own	three-piece	open C	1.56	NS	photochromic
Medennium	Matrix acrylic	own	three-piece	open C	1.56	NS	no
Medicontur	860FAB(Y)	own	one-piece	open Z	1.47	neutral	yes or no
Medicontur	Biflex HB	own	one-piece	closed loop	1.47	neutral	yes
Mediphacos	Mediflex	Benz	one-piece	open C	1.47	neutral	yes
Morcher	Lotus Classic 63G	own	one-piece	open J	1.52	aspheric	yes
Morcher	Lotus Classic 63D	own	one-piece	open J	1.52	no	no
Ophtec	Luna	Benz	one-piece	four closed loops	1.48	NS	no

NS = not supplied

Q = quarter

TAKE-HOME MESSAGE

- Hydrophobic acrylic lenses offer good mechanical stability, good uveal biocompatibility, and low rates of PCO.
- New hydrophobic acrylic materials and IOL designs are available on the European market, and more will follow.

of monomer mixtures. Depending on the mixture, hydrophobic lenses have different characteristics in terms of refractive index, presence of vacuoles, surface tackiness, temperature dependence for mechanical stability, and tensile strength. Additionally, the IOL's design and injection system are important to its overall performance.

Historically, large companies such as Abbott Medical Optics Inc. (Santa Ana, California), Alcon Laboratories, Inc. (Fort Worth, Texas), and Hoya (Tokyo) have been the primary developers of hydrophobic acrylic IOLs. These three companies have released several hydrophobic

acrylic IOL models over the past 15 years. This past year, several manufacturers that previously made only hydrophilic acrylic lenses have introduced true low water content hydrophobic acrylic IOLs. It appears that other companies also plan to launch hydrophobic acrylic lenses in the near future.

Table 1 lists the newest hydrophobic acrylic IOLs available on the European market. With the promise of additional hydrophobic acrylic technologies to become available, CRST Europe will keep you abreast of their arrival in future issues. ■

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Optic/Overall size (mm)	Optical zone (mm)	Angulation (°)	Diopter range (D)	Incision size (mm)	Introduction date	Availability (Europe)
6.0 / 13.0	5.40 >30.00 D	0	-10.00 to 45.00	2.2	June 2010	all
5.75 / 12.5	NS	0	10.00 to 30.00	2.8 or 3.2	2008	NS
6.25-6.5 / 13.0	NS	5	10.00 to 30.00	2.2	Sept 2010	all
5.8-6.0 / 10.5-10.79	NS	5	10.00 to 30.00	1.8	Sept 2010	all
6.0 / 13.0	NS	10	10.00 to 30.00	2.4	2008	all
5.7-6.0 / 10.4-10.9	NS	10	10.00 to 30.00	2.2 to 2.4	2009	all
6.0 / 12.5	NS	7	10.00 to 28.00	2.6	NS	Germany
6.0 / 12.5	NS	0	4.00 to 36.00	2.4	NS	Germany
6.0 / 13.0	5	7	8.00 to 40.00	2.4	3rd Q 2010	all
6.0 / 12.5	NS	5	6.00 to 30.00	<2.0	2009	Germany, Austria, France, Switzerland, Italy, Sweden, Netherlands
6.0 / 12.5	NS	5	0.00 to 30.00	NS	NS	NS
6.0 / 12.5	NS	5	0.00 to 30.00	NS	NS	NS
6.0 / 13.0	NS	0	0.00 to 35.00	2.8	NS	all
6.0 / 13.0	NS	0	-10.00 to 45.00	2 to 2.2	June 2010	all
6.0 / 13.0	NS	5	10.00 to 30.00	2.8	2009	all
6.0 / 12.5	NS	0	10.00 to 35.00	2.6	2007	all
6.0 / 12.5	NS	0	10.00 to 35.00	2.6	2007	all
5.7-6.0 / 10.4-10.9	NS	10	10.00 to 30.00	2.5	NS	NS