WIOL-CF®
bioanalogic IOL

BIOCOMPATIBILITY: MATERIAL AND DESIGN

Unique functionality of WIOL-CF® is achieved by the exceptional features of its material and design. The lens is made from WIGEL®, a special hydrogel developed exclusively for intraocular applications. The aim of WIGEL® development was to get as close as possible to the properties of the natural crystalline lens material.

SIZE, HYDRATION, REFRACTIVE INDEX

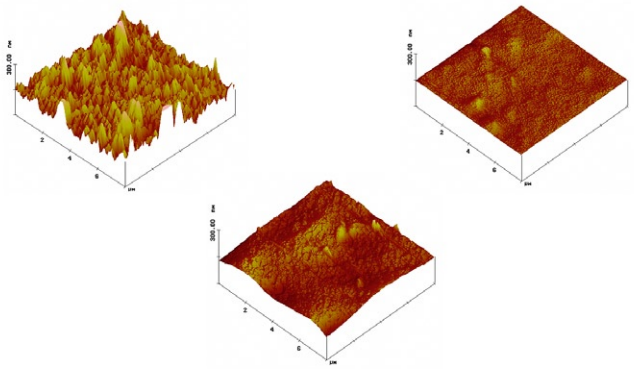
With its physical characteristics, WIOL-CF® is the most analogous to the human lens out of all currently produced IOLs.

Comparison of human lens with WIOL-CF®
and selected examples of other intraocular lenses

	NCL	WIOL-CF®	FINE VISION	M-PLUS	TECNIS	AT-LISA	ACRYSOF RESTOR
Size of optic	10 mm	9 mm	6 mm	6 mm	6 mm	6 mm	6 mm
Water content	66 %	42 %	25 %	25 %	–	25 %	–
Refractive index	1.42	1.43	1.46	1.46	1.47	1.46	1.55

SURFACE AND SHAPE

Similarly to the natural crystalline lens, the surface of WIOL-CF® features a negative charge mediated by the carboxylate groups. It is also very smooth due to its high hydration and manufacturing by spin-casting technology. No mechanical cutting or polishing is used during the production of WIOL-CF®. Its shape is created by rotation in the mold.

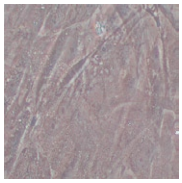


Lathe-cutting and polishing | Cast-molding | WIOL-CF®: Spin-casting

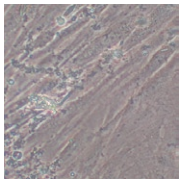
Picture of AFM scanning results
(courtesy of Dr. Michalek from the Academy of Science Czech Republic)

Negative charge and smooth surface makes WIOL–CF® resistant to opacification caused by adsorption of proteins and creation of biofilm that is often followed by adhesion and proliferation of fibroblasts. The cells cannot attach and grow on the negatively charged and smooth surface. The smooth and convex hyperbolic surface of WIOL–CF® closely adheres to the posterior capsule and does not allow penetration of cells behind the lens.

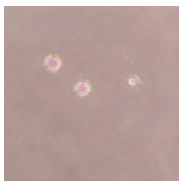
Comparison of the biological activity on the various types of surface



Tissue culture dish

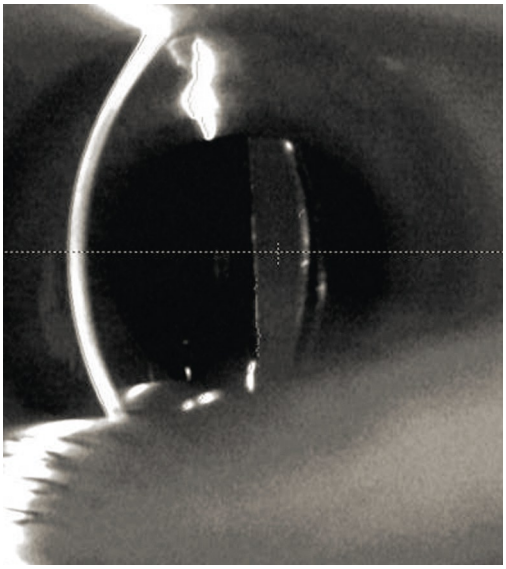


Commercial hydrophilic acrylate with 25 % hydration, posterior surface of IOL



Surface of WIOL–CF®. Seeded fibroblasts do not profilerate or adhere, remain isolated and it is easy to wash them from the surface of the lens.

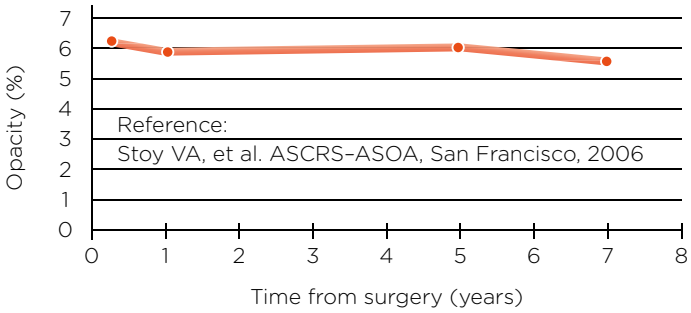
WIOL–CF® fills the posterior part of the capsule and closely adheres to it



STABILITY AND LONG-TERM RELIABILITY

Transparency, elasticity, water permeability, shape memory and other characteristics of the WIOL–CF® material are durable and its function is very stable. It offers users long-term and consistent function.

Transparency of implanted WIOL–CF® measured by Scheimpflug camera (up to 7 years after implantation)



WIOL–CF® achieves its results through a unique design and material developed to resemble properties of the natural crystalline lens. Implantation of WIOL–CF® restores many of the characteristics of the young natural crystalline lens in terms of its optics, function and position in the eye. It provides the retina and brain with comprehensive and understandable visual information. WIOL–CF® represents a leading technology for the treatment of cataract and presbyopia for patients, who demand more than visual acuities on predefined distances.

MEDICEM International GmbH
Baarerstrasse 8, 6300 Zug
Switzerland

www.wiols.com

www.medicem.com