Acriva UD

ULTRA DEFINITION INTRAOCULAR LENS

Monofocal

VSY BIOTECHNOLOGY

we inspire...

The World of Acriva[UD]

Premium Material	Best of Both Worlds
Innovative Optic Engineering	Better Visual Quality
Ultra Definition	Advanced Vision of Aspheric Design
360° All Enhanced Square Edge	Real PCO Barrier
Wide Diopter Range and Different Haptic Platforms	Complete Solutions

Excellent Combination

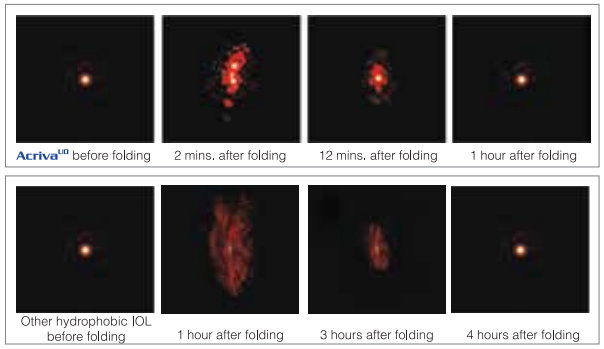
1 Premium Material

Best of Both Worlds

Excellent material combination of 2-Oxiethylmethacrylate and 2-Hydroxymethacrylate monomers creates hydrophobic surface behavior with the advantage of hydrophilic flexibility.

Benefits of Hydrophobic and Hydrophilic Monomer Combination

- No glistening
- Limited PCO
- High biocompatibility
- Low inflammatory response
- No calcification
- Easy to fold and inject
- MICS capability
- Quickly unfolding in the eye



Proven Hydrophobic Surface Behavior

AcrivaUD has contact angle measurements similar to pure hydrophobic IOLs. An independent comparative study showed that the hydrophobic surface of **Acriva**UD is similar to that of pure hydrophobic competitors[1].

Better Flexibility

The elastic co-polymer of **Acriva**UD has precise memory. Point Spread Function (PSF) shows that the optic recovers its initial shape within an hour, much more quickly than hydrophobic IOLs.

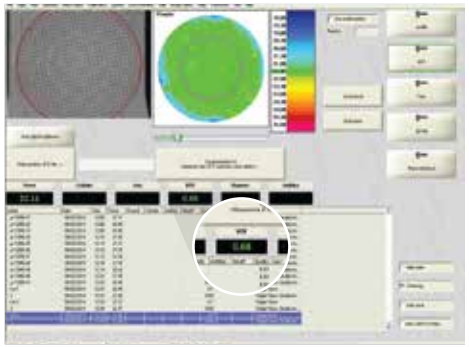
References
1- Çaykara T., Contact Angle Measurements of Intra-Ocular Lenses (IOL). Republic Of Turkey Gazi University Office Of Dean Of School Of Sciences And Letters File: B.30.2.GÜN.0.10.82.00-2431 July 14, 2009.
2- Data on file

Advanced Vision

2 Innovative Optic Engineering

Better Visual Quality

The MTF of every single **Acriva**[UD] lens produced is checked during production to ensure that its value is above international standards. All **Acriva**[UD] products demonstrate superior MTF and smooth surface topography, thanks to our innovative optic engineering.



Modular Transfer Function

MTF is a direct quantitative measurement of optic-system quality. The best result through obstacles is 0.7 at 100 lpm. International standards require the MTF results with an IOL to be above 0.43 at 100 lpm[3].
VSY Biotechnology has determined its own quality control acceptance limits that are far stricter than international standards.

3 Ultra Definition Optic

Advanced Vision of Aspheric Design

Ultra Definition optic design corrects spherical aberrations coming from cornea. **Acriva**[UD] IOLs have a slight negative asphericity, that neutralizes part of the positive aberration of the cornea, helping the patient to maintain better depth of focus[4, 5].

Advantage of Ultra Definition Design

- Improved contrast sensitivity under mesopic conditions
- Preserved depth of focus
- Less sensitive to decentration

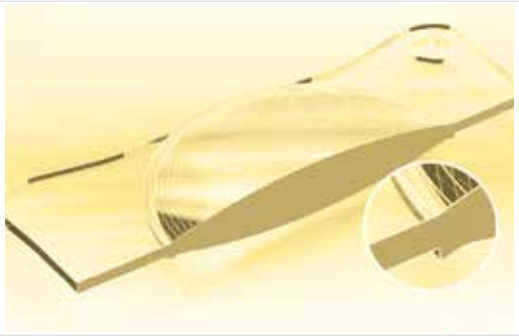
References
3- International Standard ISO 11979-2:1999 Technical Corrigendum 1 ICS 11.040.70 Ref. No. ISO 11979-2:1999/Cor.1:2003(E) Published 2003-11-01
4- Holladay J.T., Piers PA, Korayni G, et al. A new intraocular lens design to reduce spherical aberration of pseudophakic eyes. J Refract Surg. 2002, 18 (6):683-691.
5- Belluci R, Morselli S, Piers P. comparison of wavefront aberrations and optical quality of eyes implanted with five different intraocular lenses. J Refract Surg. 2004 Jul-Aug;20(4):297-306.

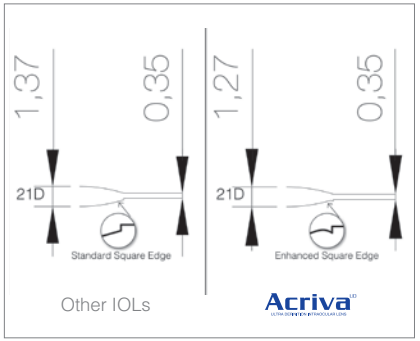
Different Platforms

4 360° All Enhanced Square Edge

Real PCO Barrier

The innovative edge design greatly reduce PCO risk by making a geometric and mechanical barrier against cell proliferation. The edge design allows for production of much thinner lenses with the same equivalent power as competitors' IOLs.





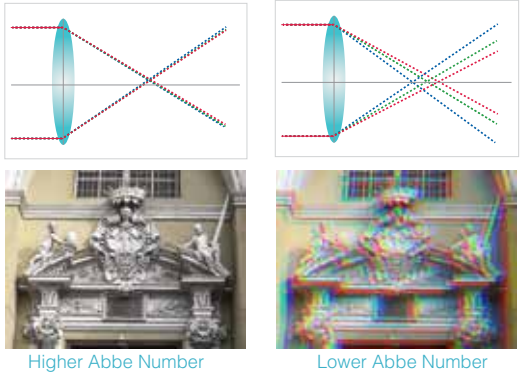
Exceptional Design

360° All Enhanced Square Edge and premium material form a dual barrier against the risk of posterior capsule opacification after implantation. Studies have shown that square edge on posterior surface of the optic is the most important IOL-related factor protecting aganist PCO formation[6, 7].

5 Superior Chromatic Aberration Control

Clear Vision

The Abbe Number of **Acriva**UD is 58, one of the highest in the IOL market. The entire Acriva UD line is guaranteed to have Superior Chromatic Aberration Control.



Higher Abbe Number | Lower Abbe Number

The Importance of Abbe Number

Chromatic aberration is a type of distortion in optical systems, caused by different wavelengths of light to have different focal points. The higher the Abbe Number, the lower the chromatic aberration[9].

References
6- Can I., Ceran BB., Soyugelen G., Takmaz T. Comparison of clinical outcomes with 2 small-incision diffractive multifocal intraocular lenses. Journal of Cataract & Refractive Surgery 2012 Vol 38 No1
7- Data on file.
9- Huawei Zhao, Martin A Mainster The effect of chromatic dispersion on pseudophakic optical performance Br J Ophthalmol 2007;91:1225–1229.

UD 613

Material	25% Hydrophilic Acrylic, UV filter
Optic Size	6.00 mm
Optic Design	Biconvex
Haptic Size	13.00 mm
Haptic Design	Modified C
Haptic Angle	0˚
Recommended Ac. A Constant	118.0
Recommended Op. A Constant	Srk-T : 118.4 - Srk-II : 118.6
Diopter Power Range	From -20.00D to +45.00D (0.50D increments)
Refractive Index Wet	1.462 (589 nm)
Recommended Injector & Cartridge System	Acrijet FLY 1.8 (Up to 19.5D) Acrijet FLY 2.2 (Up to 32.0D)

Blue Light Filtration

Optimum Filtration Range

Natural Chromophore

Ideal Concentration

Balanced Photoprotection of UVA and Violet Spectrum

Same Transmission Properties as Natural Lens

Improved Contrast Sensitivity

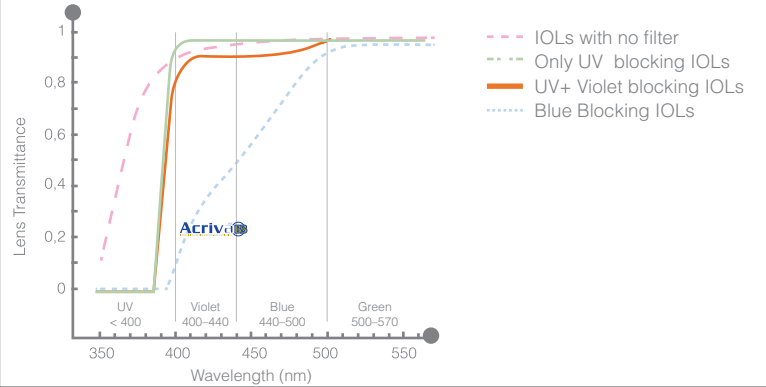
Efficient Protection

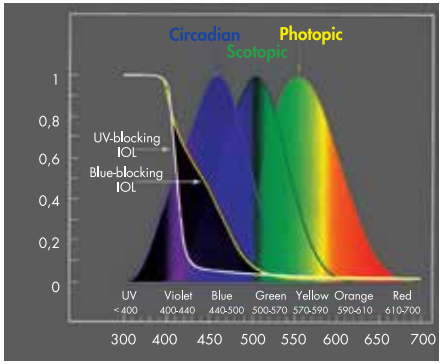
1 Optimum Filtration Range

Balanced Photoprotection of UVA and Violet Spectrum

Acriva[UD] BB provides excellent photoprotection from potential damage of UVA and violet spectrum without blocking blue light. Acriva[UD] BB ensures 95% blue light transmission at 480nm, known to be critical in controlling the circadian rhythm [8, 9, 10, 11, 12].

The chromophore used in Acriva[UD] BB material has a similar chemical structure to the chromophore naturally present in the human lens.





Circadian Rhythm
The body's 24-hour cycle

Scotopic Vision
Vision under low light conditions

Photopic Vision
Vision under high light conditions

Importance of Blue Light

Blue light plays a crucial role in controlling the circadian rhythm and endogenous melatonin secretion. Disorganization of the circadian rhythm is more common in older adults and people with insomnia[13], depression[14, 15], and dementia[16,17]. Blue-blocking IOLs, which contain synthetic dye filter up to 500 nm causes excessive filtering of blue light.

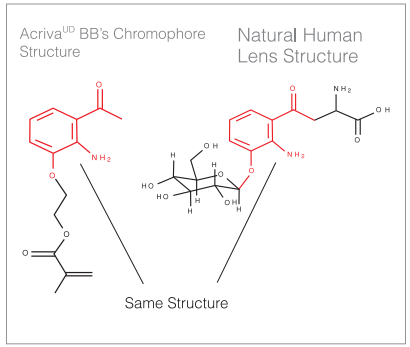
References
8- Dacey DM, Liao HW, Peterson BB, et al. Melanopsin-expressing ganglion cells in primate retina signal colour and irradiance and project to the LGN. Nature 2005; 433; 749-54.
9- Qiu X, Kumbalasiri T, Carlsan SM et. al. Induction of photosensitivity by heterologus expression of melanopsin. Nature 2005;433:745-9
10- Abbott A. Restless nights, listless days. Nature 2003. 425896–898.898
11- Foster R G. Neurobiology: bright blue times. Nature 2005. 433698–699.699
12- Van Gelder R N. Blue light and the circadian clock. Br J Ophthalmol 2004. 881353
13- Haimov I, Laudon M, Zisapel N. et al Sleep disorders and melatonin rhythms in elderly people. BMJ 1994. 309167
14- Terman M, Terman J S. Light therapy for seasonal and nonseasonal depression: efficacy, protocol, safety, and side effects. CNS Spectr 2005. 10647–63 quiz 672.63 quiz 672
15- Jones S H. Circadian rhythms, multilevel models of emotion and bipolar disorder - an initial step towards integration? Clin Psychol Rev 2001. 211193–1209.1209
16-Reiter R J, Tan D X, Pappolla M A. Melatonin Relieves the Neural Oxidative Burden that Contributes to Dementias. Ann N Y Acad Sci 2004. 1035179–196.196
17- Mainster MA. Violet and blue light blocking intraocular lenses: photoprotection versus photoreception. British Journal of Ophthalmology. 2006;90:784-792

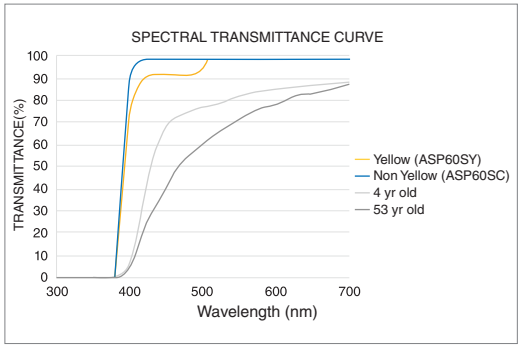
Superior Clarity

2 Natural Chromophore

Similar Transmission Properties to Natural Lens

Acriva^{UD} BB contains 3-hydroxykynurenine, similar to the chromophore present in the human natural lens.



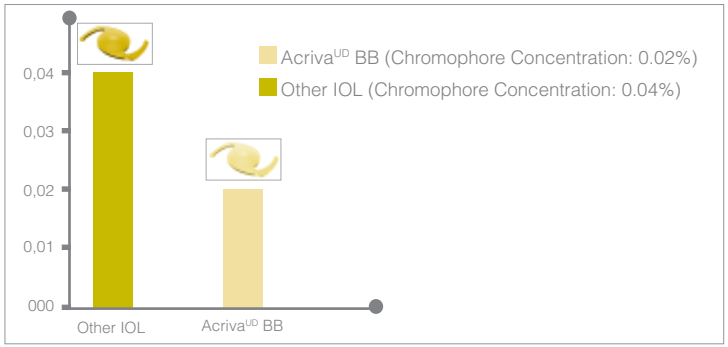


Chromophore structure of Acriva^{UD} possesses the same transmission as human natural crystalline lens with a good protection of the macula against UV-A and blue light thanks to the absorption curve that mimics the human crystalline lens, preserving natural color perception and contrast sensitivity.

3 Ideal Concentration

Improved Contrast Sensitivity

Acriva^{UD} BB's chromophore concentration is 0.02%. It has a clearer color than IOLs with higher concentrations of chromophores. Low concentration of Acriva^{UD} BB doesn't influence patient color perception.



Natural chromophore and its lower concentration provide higher contrast sensitivity under mesopic conditions.

BB UD 613

BB UDM 611

BB T UDM 611

Material	25% Hydrophilic Acrylic, UV, violet, and blue filter
Optic Size	6.00 mm
Optic Design	Monofocal
Haptic Size	13.00 mm
Haptic Design	Modified C
Haptic Angle	0˚
Recommended Ac. A Constant	118.0
Recommended Op. A Constant	Srk-T:118.4 - Srk-II:118.6
Diopter Power Range	From -20.00D to +45.00D (0.50D increments)
Refractive Index Wet	1.462 (589 nm)
Recommended Injector & Cartridge System	Acrijet FLY 1.8 (Up to 19.5D) Acrijet FLY 2.2 (Up to 32.0D)

Material	25% Hydrophilic Acrylic, UV, violet, and blue filter
Optic Size	6.00 mm
Optic Design	Monofocal
Haptic Size	11.00 mm
Haptic Design	Plate Haptic
Haptic Angle	0˚
Recommended Ac. A Constant	118.0
Recommended Op. A Constant	Srk-T:118.7 - Srk-II:119.0
Diopter Power Range	From -20.00D to +45.00D (0.50D increments)
Refractive Index Wet	1.462 (589 nm)
Recommended Injector & Cartridge System	Acrijet FLY 1.8 (up to 22.50 D) Acrijet FLY 2.2 (up to 32.00 D)

Material	25% Hydrophilic Acrylic, UV, violet, and blue filter
Optic Size	6.00 mm
Optic Design	Monofocal Toric
Haptic Size	11.00 mm
Haptic Design	Plate Haptic
Haptic Angle	0˚
Recommended Ac. A Constant	118.0
Recommended Op. A Constant	Srk-T:118.6 - Srk-II:118.9
Diopter Power Range	Spheric: From 0.00D to +32.00D (0.50D increments) Cylindric: From +1.00D to +10.00D (0.50D increments)
Refractive Index Wet	1.462 (589 nm)
Recommended Injector & Cartridge System	Acrijet FLY 1.8 (up to 22.50 D cyl 5.00 D) Acrijet FLY 2.2 (up to 32.00 D cyl 10.00D)

Acriva[UD]

UD 613

Acriva[UD] BB

BB UD 613

BB UDM 611

Acriva[UD] BB Toric

BB T UDM 611

These products may not be available in every country

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2024 VSY Biotechnology 11/24 MKT Rev-10