HI56
HYDROPHOBIC

SEMI-FINISHED PRODUCT CUSTOMER SPECIFICATION

CONTATEQ®

1 GENERAL

1.1 The HI56 hydrophobic is supplied in a semi-finished format with two finished optics and an unfinished haptic zone that gives an overall "flying saucer" shaped profile, often referred to as a Saturn disc. This semi-finished product simplifies the production process for the IOL manufacturer and avoids the current difficulties linked to cryogenic and cold temperature lathing.

1.2 The parts are cast in medical grade single use polypropylene moulds using a photo-polymerisation process. The monomers used are of ultra-high purity and exceptional conversions are obtained. The optics do not need any additional polishing, and with a good milling process, the haptics should also be polish free, saving considerable time and cost.

1.3 The HI56 hydrophobic material has been specifically formulated to fulfil the latest requirements and demands for hydrophobic intraocular lens production. The material has been developed to create a balance between high refractive index, compression and fast unfolding time.

2 OPTIC DESIGN

2.1 Negatively aspheric lens which corrects 0.25µm of spherical aberration (SA), designed to produce zero spherical aberration in an eye model representing an average normal population.

2.2 The anterior lens surface is aspheric (conic constant K= -1.000 and α2 constant according table). The posterior lens surface is a standard sphere (conic constant K=0).

Sphere Power (D)	***α2* constant (mm^{-3})**
10.0	-0.00040506
15.0	-0.00044659
20.0	-0.00048202
25.0	-0.00056325
30.0	-0.00062828

2.3 The power of the lens was optimized to be the nominal value at 3mm aperture.

2.4 Product is available from +10.0D to +30.0D in 0.5 dioptre steps.

2.5 Estimated A-Constant.

A-Constant	Ultrasound A-Scan	Optical Biometry
SRK/T Formula	117.8	118.8
SRK II Formula	118.1	119.1

3 DIMENSIONS

3.1 Overall flying saucer diameter: 14.00mm

3.2 Edge thickness (haptics): 0.32mm

3.3 Square edge height: 0.04mm

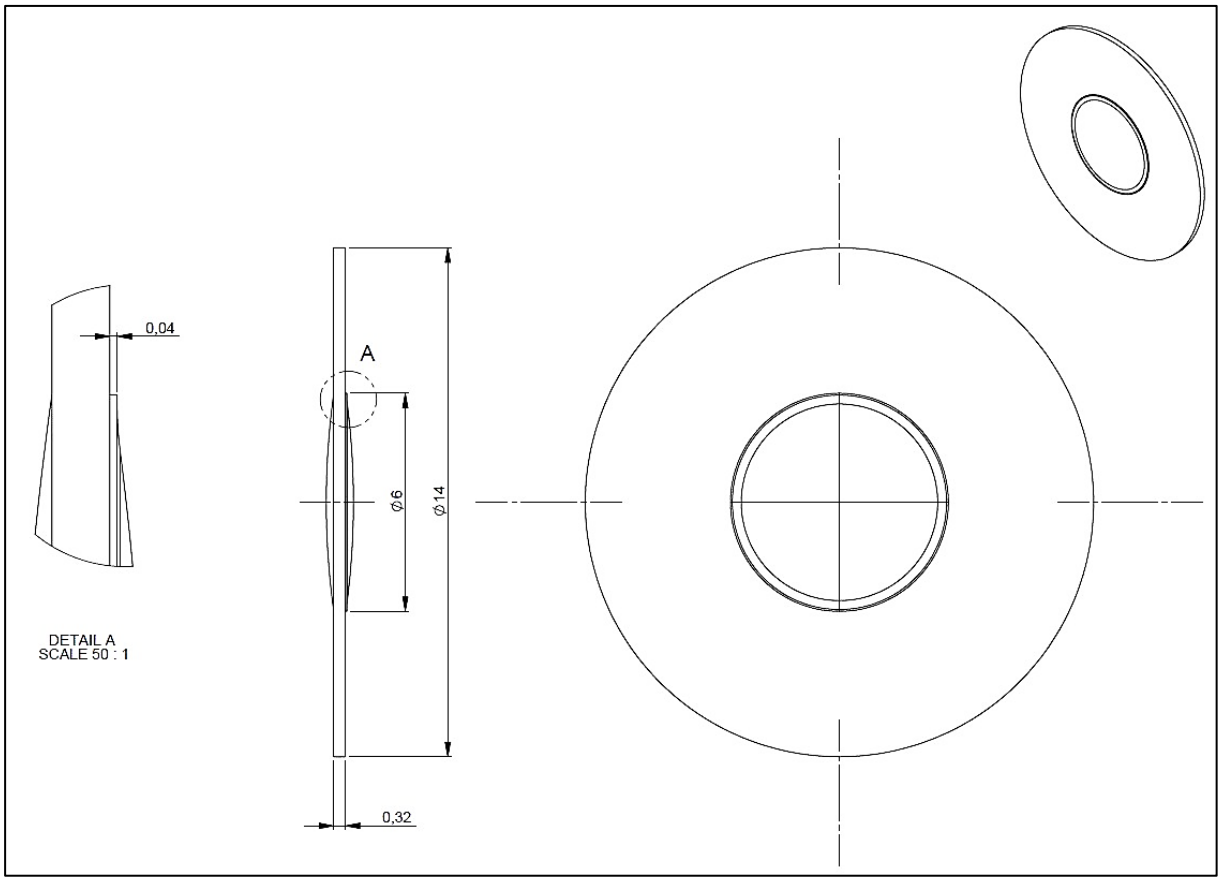
3.4 Optic body diameter: 6.00mm

3.5 Anterior aspheric optic zone diameter: 6.00mm

3.6 Posterior spherical optic zone diameter: 5.80mm

Sphere Power (D)	Anterior Radius (mm)	Posterior Radius (mm)	Optic Body ø (mm)	Optic Zone ø (mm)	Centre Thickness (mm)	Anterior Sag (mm)	Posterior Sag (mm)	Edge Thickness (mm)	Square Edge Height (mm)
10.0	43.300	- 39.780	6.00	5.80	0.537	0.071	0.106	0.320	0.040
15.0	29.739	- 26.830	6.00	5.80	0.632	0.115	0.157	0.320	0.040
20.0	21.756	- 20.700	6.00	5.80	0.732	0.168	0.204	0.320	0.040
25.0	18.000	-16.170	6.00	5.80	0.826	0.204	0.262	0.320	0.040
30.0	14.500	-14.015	6.00	5.80	0.922	0.259	0.303	0.320	0.040

Product Drawing

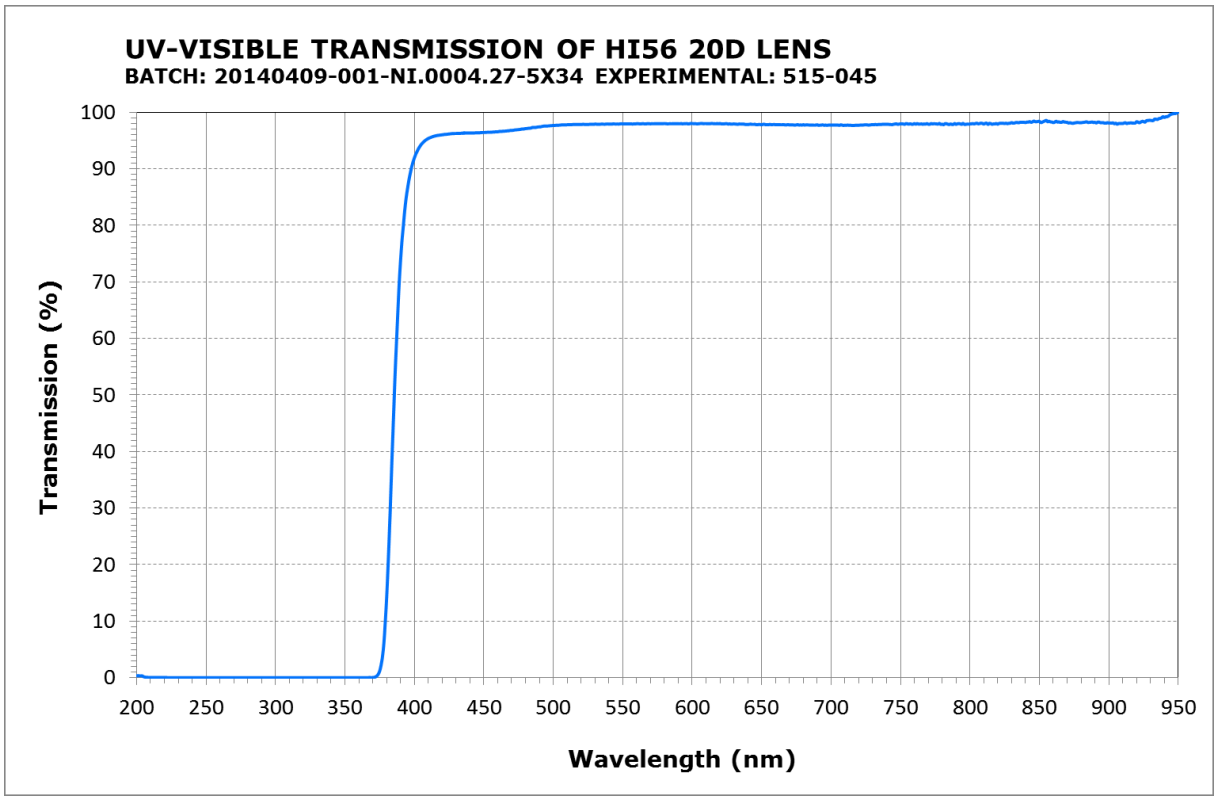


4 MATERIAL FORMULATION

4.1 The HI56 material is a copolymer of Phenylethyl acrylate (PEA) and Phenylethyl methacrylate (PEMA) which is cross-linked with Butanediol diacrylate (BDDA) and does include a benzotriazole UV absorber.

5 MATERIAL PROPERTIES

PROPERTIES	Value
Tg MIDPOINT DSC (°C)	11.5°C
UNFOLDING RATE (24°C)	25s
REFRACTIVE INDEX DRY (21°C)	1.560
REFRACTIVE INDEX HYDRATED (21°C)	1.560
REFRACTIVE INDEX HYDRATED (35°C)	1.555
ABBE NUMBER (35°C)	38.1
WATER CONTENT BY WEIGHT	<0.5%
MONOMER RESIDUALS	<0.6%
E-MODULUS	2.8MPa
TENSILE STRENGTH	3.8MPa
ELONGATION TO BREAK	176%
10% UV CUT-OFF WAVELENGTH	379nm
UV TRANSMISSION (300-380NM)	0.5%
VISIBLE TRANSMISSION (380-800NM)	>96%


UV-VISIBLE TRANSMISSION OF HI56 20D LENS
BATCH: 20140409-001-NI.0004.27-5X34 EXPERIMENTAL: 515-045
Transmission (%)
100
90
80
70
60
50
40
30
20
10
0
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
Wavelength (nm)