Innovative Biomaterials for Retinal Surgery

Ultrapure fluids and gases made in Germany

Geuder®
Precision made in Germany

FLUORON®
PURITY AND VARIETY

Content

Solutions for ophthalmic surgery

G-81010
G-81005

G-81015
G-81025

G-81002
G-81001

5 ml: G-80315
7 ml: G-80317
5 ml: G-80305
7 ml: G-80307

5 ml: G-80115
7 ml: G-80117
5 ml: G-80105
7 ml: G-80107

G-80950

G-80960

G-80970

Dyes

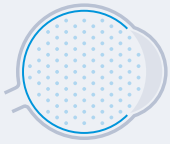
Posterior segment

Anterior segment

Intraoperative Tamponades

Long-Term Tamponades

Gases



G-80740 | G-80750 | G-80720 | G-80710 | G-80820 | G-80810

G-80925

G-80615 | 6 ml: G-80606, 9 ml: G-80609

Long-Term Tamponades

Silicone oils

Long-Term Tamponades

Heavy silicone oils

Cleansing Fluids / WashOut

Accessories

Fluoron

Brilliant Peel®

Heavy dye for selective staining of the ILM

- Precise and intense staining of the ILM due to fast sinking dye
- Safe application under air and BSS
- Quick and easy application (Ready-to-use)
- Physiological osmolarity
- Biocompatible

Composition and properties

1 ml of Brilliant Peel® contains:

- 0.25 mg Brilliant Blue G
- Disodium phosphate ($Na_2HPO_4 \times 2\ H_2O$)
- Monosodium phosphate ($NaH_2PO_4 \times 2\ H_2O$)
- Sodium chloride (NaCl)
- Deuterium oxide (D_2O)
- Water for injection

Density: 1.02 g/cm³

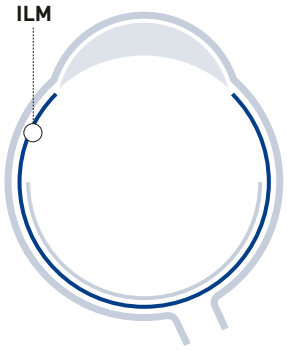
Packaging units

G-81010 Brilliant Peel® Syringe
0.5 ml Syringe, 5 pcs. per box, sterile

G-81005 Brilliant Peel® Vial
0.5 ml Vial, 5 pcs. per box, sterile

Fields of application

Brilliant Peel® was developed for specific staining of the inner limiting membrane (ILM). Specific staining of the ILM allows it to be clearly differentiated from the underlying retinal tissue and the epiretinal membranes. Due to the density of 1.02 g/cm^3 Brilliant Peel® quickly sinks to to the fundus of the eye without diffuse dispersion in the whole bulbus. The surgically demanding removal of the ILM thus becomes easier and safer.



Comparison of Brilliant Blue G (BBG), Indocyanine Green (ICG) and Trypan Blue (TB) for chromovitrectomy [22, 25]

	BBG	ICG	TB
Chemical classification	Triphenylmethane	Cyanine	Diazo
Color	blue	dark green	dark blue
Ready-to-use	yes	no	yes
Toxicity [12, 16, 17, 20, 21, 23]	no	yes	moderate
Significant cytotoxic effect [23, 30] (according to DIN EN ISO 10993)	> 0.3 g/l reduces cell growth	> 0.24 g/l causes apoptosis	> 0.13 g/l
Approval	yes	no	yes
Affinity for ILM [18, 19, 22]	high	high	low
Affinity for ERM [12]	low	low	high
Selective staining of ILM [12, 18, 19]	high	high	low
Exposure time	short	short	long
Liquid / Gas exchange necessary	no	partially	yes

Testimonials Brilliant Peel®

"Our data underline the good biocompatibility of BBG and its applicability and safety for the use in humans. BBG provides a sufficient and selective staining of the ILM. No retinal toxicity related to BBG was observed in our animal study and our shortterm clinical investigation in humans."

Remy, M., S. Thaler, R. G. Schumann et al. 2008. "An in vivo evaluation of Brilliant Blue G in animals and humans" British Journal of Ophthalmology 92(8): 1142-1147.

"Heavy brilliant blue G (BBG-D_2O) provides a significantly improved staining effect of the ILM and by this makes ILM peeling more efficient, easier, faster and less traumatic."

Gerding, H., M. Timmermann and U. Thelen. 2011. "Intravital staining of the internal limiting membrane with a novel heavy solution of brilliant blue G." Klinische Monatsblätter für Augenheilkunde, 228(04): 298-301.

"Brilliant blue G-D_2O dye comportment is convenient, as the dye sinks readily onto the retinal surface and dye dispersion to the remaining vitreous is reduced. Indications for dye-related toxicity or complications were not seen."

Henrich, P. B., C. Valmaggia, C. Lang, S. G. Priglinger, C. Haritoglou, R. W. Strauss and P. C. Cattin. 2013. "Contrast recognizability during Brilliant Blue G - and heavier-than-water Brilliant Blue G-assisted chromovitrectomy: a quantitative analysis." Acta Ophthalmologica 91(2): e120-124.

"Although the MH closure rate was the same using BBG or ICG for ILM peeling, visual acuity improvement was better in eyes peeled with BBG compared to eyes peeled with ICG."

Jenisch, T. M., F. Zeman, M. Koller, D. A. Märker, H. Helbig and W. A. Herrmann. 2017. "Macular hole surgery: An analysis of risk factors for the anatomical and functional outcomes with a special emphasis on the experience of the surgeon." Clinical Ophthalmology (Auckland NZ) 11: 1127–1134.

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Brilliant Peel® Dual Dye

The non-toxic dual dye

Safer peeling due to distinct staining of the membrane

- Intense and selective staining of ILM, ERM and vitreous remnants
- Fast sinking – maximized contact surface with tissue due to higher density
- Safe application under air and BSS
- Quick and easy application (Ready to use)
- Physiological osmolarity
- Biocompatible

Composition and properties

1 ml of Brilliant Peel® Dual Dye contains:

- 0.25 mg Brilliant Blue G
- 1.3 mg Bromphenol Blue
- Disodium phosphate ($Na_2HPO_4 \times 2\ H_2O$)
- Monosodium phosphate ($NaH_2PO_4 \times 2\ H_2O$)
- Sodium chloride (NaCl)
- Deuterium oxide (D_2O)
- Water for injection

Density: 1.03 g/cm³

Packaging units

G-81015 Brilliant Peel® Dual Dye Syringe
0.5 ml syringe, 5 pcs. per box, sterile

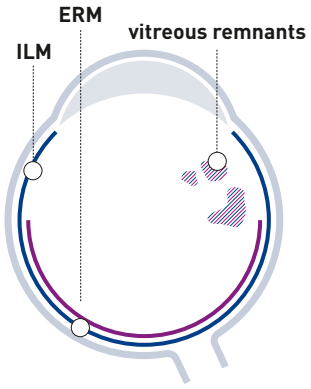
G-81025 Brilliant Peel® Dual Dye Vial
0.5 ml vial, 5 pcs. per box, sterile

Video

Scan QR-Code for further information on Brilliant Peel Dual Dye

Fields of application

Brilliant Peel® Dual Dye was developed for specific staining of the inner limiting membrane (ILM) and epiretinal membrane (ERM). Specific staining of the ILM and ERM allows them to be clearly distinguished from the underlying retinal tissue, thus making the challenging surgical removal of the ILM and ERM easier and safer. Due to the density of 1.03 g/cm^3 Brilliant Peel® Dual Dye quickly sinks to to the fundus of the eye without diffuse dispersion in the whole bulbus. Brilliant Peel® Dual Dye can, to some extent, also be used for staining vitreous remnants.



Comparison of Brilliant Blue G (BBG), Bromphenol Blue (BPB), Indocyanine Green (ICG), Trypan Blue (TB) and Lutein for chromovitrectomy [38, 39]

	Brilliant Peel® Dual Dye	**Other dyes**		
	BBG & BPB	**ICG**	**TB**	**Lutein**
Chemical classification	Triphenylmethane	Cyanine	Diazo	Carotinoid
Color	violet-blue	green	blue	yellow-orange
Dyes [42]	Brilliant Blue G & Bromphenol Blue	Indocyanine Green	Trypan Blue	Lutein
Toxicity [31, 32, 33, 36, 37, 39, 40, 42, 45]	no	yes	moderate	no
Approval	yes	no	yes	yes
Affinity for ILM [34, 35, 38, 43, 44, 45]	high	high	low	no
Affinity for ERM [32, 43, 45]	high	low	high	n.a.
Affinity for vitreous remnants [41, 43, 44, 45]	moderate	low	low	high
Exposure time	short	short	long	short
Liquid / Gas exchange	no	no	yes	no

Testimonials Brilliant Peel® Dual Dye

”Excellent staining of pre-retinal membranes and vitreous remnants.“

Senior Consultant Dr. Jürgen Steinhauer, Eye Clinic of Helios University Hospital Wuppertal – University Witten/Herdecke, Germany

”Outstanding staining properties and an impressing sinking behavior makes Brilliant Peel Dual Dye the perfect tool for a save peeling in epiretinal macular procedures. Flawless for a fast and reliable multiple staining of different membrane parts.“

Prof. Dr. Lars-Olof Hattenbach, Director of Eye Clinic Ludwigshafen, Germany

”Even under yellow UV-IOL the shape of the retinal nerve fiber layer (RNFL) on the ILM was perfectly visible. A highly promising dye with excellent sinking properties.“

Senior Physician Dr. A. Viestenz, University Clinic of Saarland, Homburg, Germany

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Vioron®

The versatile trypan blue dye for the anterior segment

- Brilliant visualization of the anterior lens capsule
- Excellent distinction of the capsulorhexis margin
- Quick and easy application (Ready-to-use)
- Approved for DMEK

Composition and properties

1 ml of Vioron® contains:

- 0.6 mg Trypan Blue
- Disodium phosphate ($Na_2HPO_4 \times 2\ H_2O$)
- Monosodium phosphate ($NaH_2PO_4 \times 2\ H_2O$)
- Sodium chloride (NaCl)
- Water for injection

Density: 1.00 g/cm³

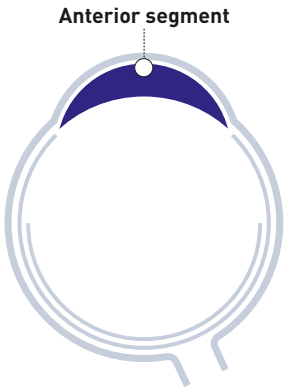
Packaging units

G-81002 Vioron® Syringe
0.5 ml syringe, 5 pcs. per box, sterile

G-81001 Vioron® Vial
0.5 ml vial, 5 pcs. per box, sterile

Fields of application

Vioron® was developed for ophthalmic surgical procedures in the anterior segment of the eye such as cataract operations or keratoplasties. Staining the anterior lens capsule makes it more visible, thus facilitating capsulorhexis and minimizing the risk of tearing. Furthermore, Vioron® facilitates the preparation and transfer of the donor cornea in the case of lamellar corneal transplantations and the removal of the diseased Descemet's membrane in case of DMEK and DS(A)EK).



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Capsulorhexis

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F-Octane F-Decalin

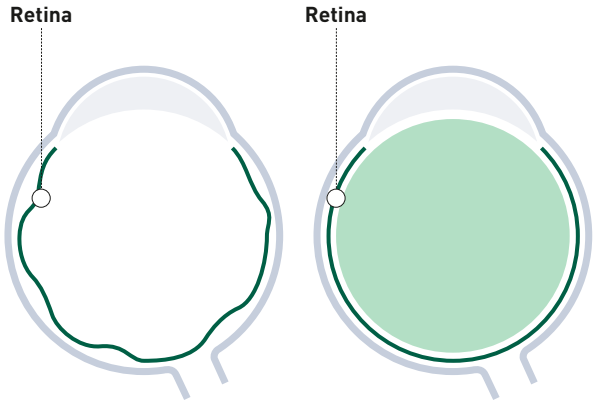
Ultrapure perfluorocarbons for intraoperative tamponades

- Gentle retinal unfolding and stabilization
- Drainage of subretinal fluids
- Refloating luxated lenses
- Short-term tamponade
- Outstanding stability and biocompatibility
- Ready-to-use syringes

Packaging units		F-Octane	F-Decalin
	Syringe 5 ml	G-80315	G-80115
	Syringe 7 ml	G-80317	G-80117
	Vial 5 ml	G-80305	G-80105
	Vial 7 ml	G-80307	G-80107

Field of application

F-Octane and F-Decalin are used as medical adjuvants for gentle retinal unfoldings, giant tears, traumata, laser coagulation as well as cryotherapy. Furthermore, they are used for refloating luxated lenses and as short-term tamponades.



Composition and properties

F-Octane and F-Decalin are sterile fluorocarbon compounds with high density (1.76 g/cm^3 and 1.93 g/cm^3). They only consist of C-C and C-F bonds and do not contain any relevant amounts of biologically active components, thanks to the complex purification process at Fluoron. Due to the exceptional strength of the C-F bonds, F-Octane and F-Decalin are chemically and physiologically inert and absolutely non-toxic.

	F-Octane	F-Decalin
Density [g/cm^3]	1.76	1.93
Vapor pressure [mbar] at 25° C	18.5	8.0
Refractive Index at 20° C	1.2700	1.3110
Surface tension [mN/m] at 25° C	14.0	19.0
Interface tension [mN/m] at 25° C	55.0	57.8
Composition	100 % Perfluorooctan (PFO)	100 % Perfluorodecalin (PFD)

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EasyGas®

The first ready-to-use gas tamponade

- Quick and easy application through sterile, pre-filled system
- Safe usage because of precise, non-expanding mixture ratio in each syringe
- No mix-up of gases due to colour coding
- Three gases for different tamponade durations
- Reduced risk for hypertension or ischemia, because manual mixing is not required
- No subsequent surgery for tamponade removal necessary
- Contains patient information card and patient wristband

Packaging units

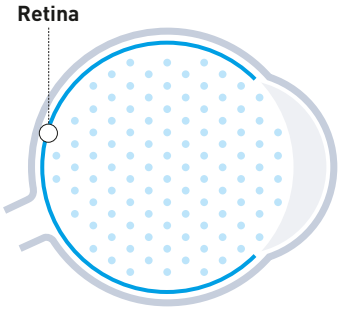
G-80950 EasyGas® SF_6
Syringe 40 ml, sterile

G-80960 EasyGas® C_2F_6
Syringe 40 ml, sterile

G-80970 EasyGas® C_3F_8
Syringe 40 ml, sterile

Fields of application

EasyGas® SF6, EasyGas® C2F6 and EasyGas® C3F8 are the first ready-to-use gas tamponades. The sterile, pre-filled, ready-to-use system offers a quick and easy application of the tamponades. EasyGas® is used as long-term tamponade after operative treatment of severe retinal detachment.



	EasyGas® SF_6	EasyGas® C_2F_6	EasyGas® C_3F_8
Effective tamponade time [days]	6	15	30
Retention time / Longevity* [weeks]	1 – 2	4 – 5	6 – 8
Non-expansive gas concentration* [%]	20	16	12

Indication

	EasyGas® SF_6	EasyGas® C_2F_6	EasyGas® C_3F_8
Retinal detachment with giant tears	✔	✔	–
Retinal detachment without proliferation	✔	✔	–
Retinal detachment in cases of proliferative diabetic retinopathy (PDR)	✔	✔	–
Proliferative vitreoretinopathy (PVR)	✔	✔	✔
Traumatic retinal detachment	✔	✔	–

Reference: Cekic O., Ohji M. (2010): Intraocular Gas Tamponades. Semin Ophthalmol. 2000 Mar; 15 (1): 3-14.

Composition and properties

	EasyGas® SF_6	EasyGas® C_2F_6	EasyGas® C_3F_8
Density of pure gas	6.17 kg/m³	5.73 kg/m³	8.17 kg/m³
Density of ready-to-use mixture	2.34 kg/m³	1.95 kg/m³	2.01 kg/m³
Composition	20 % SF_6 5.0 80 % synthetic air 6.0	16 % C_2F_6 5.0 84 % synthetic air 6.0	12 % C_3F_8 4.0 88 % synthetic air 6.0

Siluron®

A new generation of silicone oils with an innovative molecular design

- High resistance to emulsification
- Short injection time
- Good long-term tolerability
- Excellent chemical purity

Siluron® 2000
Premium silicone oil with customized extensional viscosity

Siluron® XTRA
Premium silicone oil with an Xtra portion of elasticity

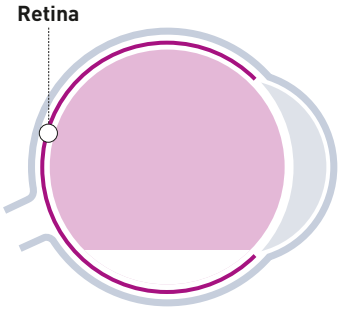
The new generation of Siluron® silicone oils is characterized by its special property of a significantly higher emulsification resistance. This is based on an intelligent mixture of different chain lengths of molecules and the resulting dynamic viscosity. Good injectability in cases of small incisions is a further advantage of these innovative silicone oils.

Packaging units

G-80740 Siluron® 2000 Syringe
10 ml, sterile

G-80750 Siluron® Xtra Syringe
10 ml, sterile

Fields of application



Siluron® silicone oils are used as long-term tamponades after operative treatment of severe retinal detachment, particularly for:

- Retinal detachments with giant tears
- Retinal detachments with proliferative vitreoretinopathy (PVR)
- Retinal detachments in cases of proliferative diabetic retinopathy (PDR)
- Traumatic retinal detachments

Due to their specific density of 0.97g/cm³ the Siluron® silicone oils float on water.

Standard silicone oils also available in vials

Good long-term tolerability

Excellent chemical purity

Chemically and physiologically inert

Siluron® 1000
Easily injectable

Siluron® 5000
Higher resistance to emulsification

Packaging units

G-80720 Siluron® 1000 Syringe 10 ml, sterile
G-80820 Siluron® 5000 Syringe 10 ml, sterile

G-80710 Siluron® 1000 Vial 10 ml, sterile
G-80810 Siluron® 5000 Vial 10 ml, sterile

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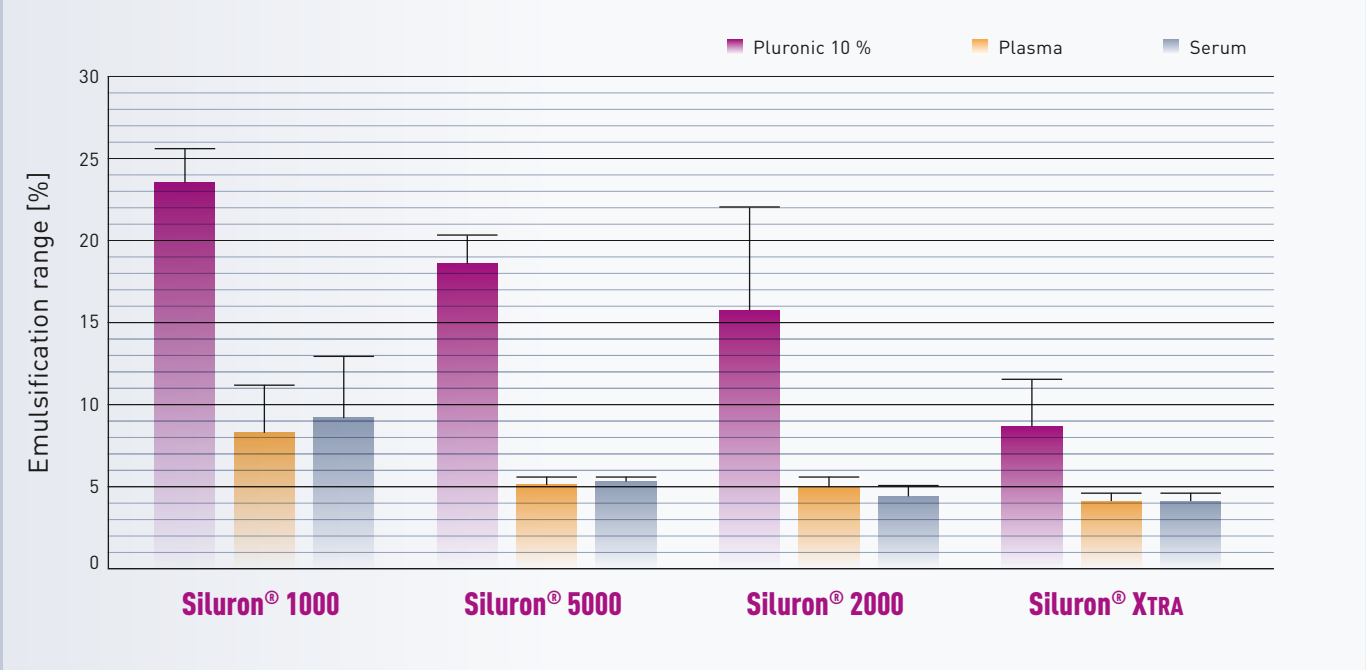
Overview of properties

Physicochemical properties of Siluron® oils

Property	Siluron® 1000	Siluron® 5000	Siluron® 2000	Siluron® XTRA
Density [g/cm³] at 25° C	0.97	0.97	0.97	0.97
Viscosity [mPas] at 25° C	900 - 1200	4800 - 5500	2000 - 2400	4100 - 4800
Refractive index	1.404	1.404	1.404	1.404
Solubility in water	non miscible	non miscible	non miscible	non miscible
Composition [w %]	100 % Polydi-methylsiloxane (PDMS)	100 % Polydi-methylsiloxane (PDMS)	95 % Siluron® 1000 + 5 % PDMS (2.5 M mPas)	90 % Siluron® 1000 + 10 % PDMS (2.5 M mPas)
Elasticity (Je^0) [Pas]	2×10^{-5}	1×10^{-5}	6.5×10^{-4}	1.4×10^{-3}
Shear viscosity (at 8.37 s^{-1} and 37° C) [mPas]	931	4303	1800	4377
Volatile components (200° C, 24 h) [%]	⩽ 0.2 %	⩽ 0.2 %	⩽ 0.2 %	⩽ 0.2 %

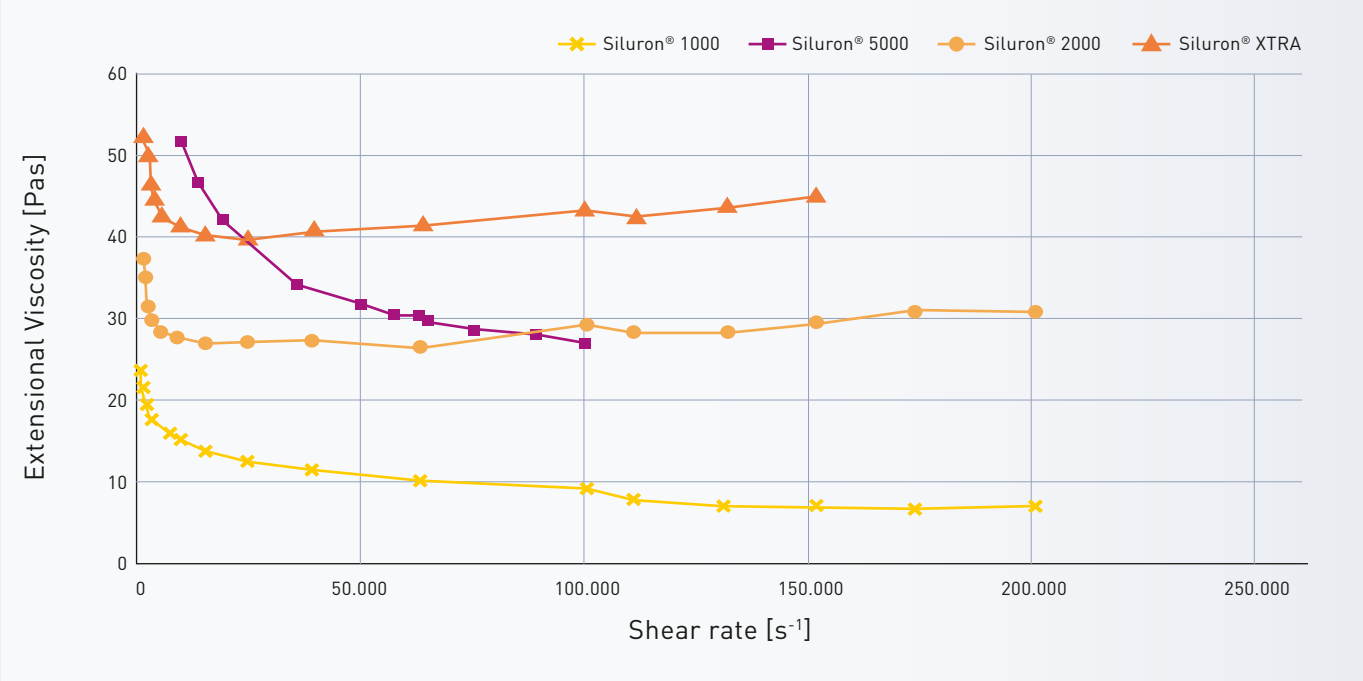
Reference: Caramoy A., Hagedorn N., Fauser S., Kugler W., Gross T., Kirchhof B.: Development of emulsification-resistant silicone oils: can we go beyond 2000 mPas silicone oil? Invest Ophthalmol Vis Sci. 2011; 52: 5432-5436

Comparison of emulsification rate



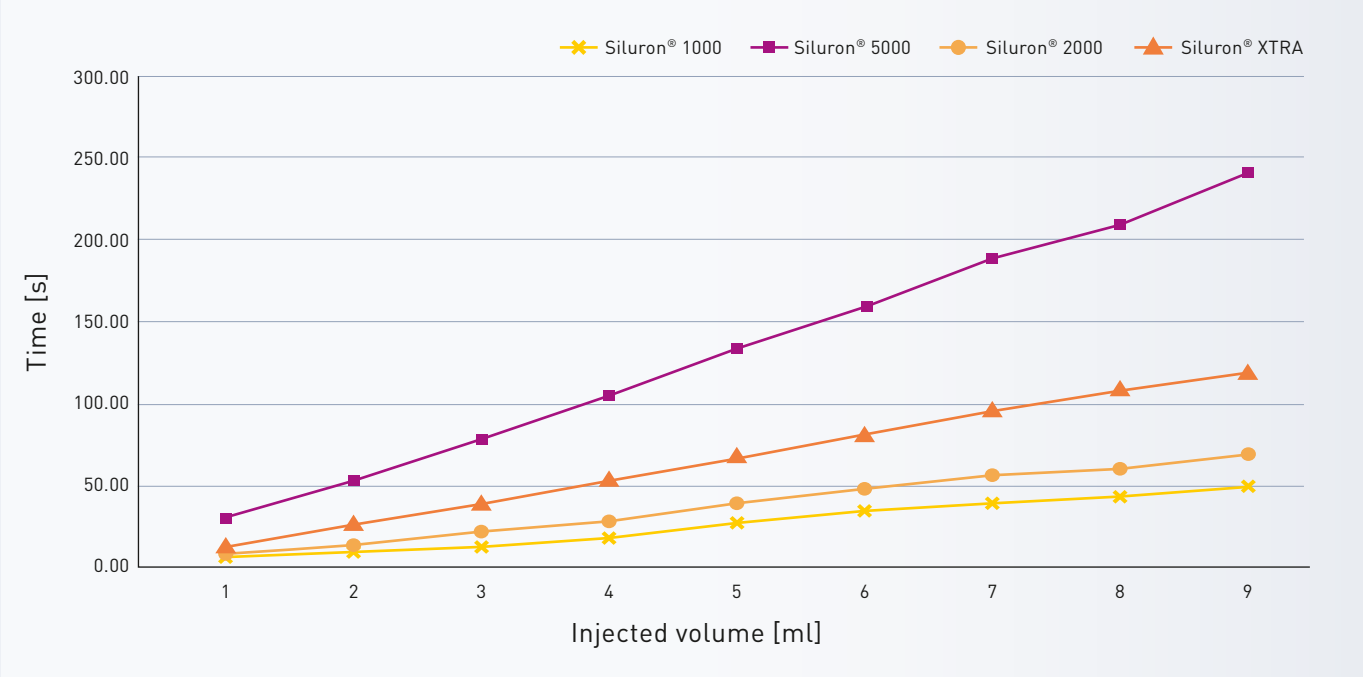
Reference: Caramoy A., Hagedorn N., Fauser S., Kugler W., Gross T., Kirchhof B.: Development of emulsification-resistant silicone oils: can we go beyond 2000 mPas silicone oil? Invest Ophthalmol Vis Sci 2011; 52: 5432-5436

Comparison of emulsification resistance



Reference: Wong et. al

Comparison of injection time 5,5 bar injection pressure, 20 gauge injection cannula



Reference: Williams RL ., Day MJ ., Garvey MJ., Morphis G ., Irigoyen C ., Wong D., Stappler T.: Injectability of silicone oil-based tamponade agents. Br J Ophthalmol. 2011; 95: 273-276

Densiron® XTRA

The heavy silicone oil with molecular design

- Unique moleculary design
- Heavier than water
- Ideal for inferior pathologies
- Removing proliferative milieu in lower part of retina
- Avoiding unpleasant constraints for patient ("head-down-position")
- Easy to inject
- 25G compatible
- Highly resistant against emulsification

Caramoy A., Schröder S., Fauser S., Kirchhof B. (2010) In vitro emulsification assessment of new silicone oils. Br J Ophthalmol 94, 509-512

Composition and properties

Density [g/cm³] at 25° C:
1.05 - 1.07
Viscosity [mPas] at 25° C:
1.000 – 1.400
Composition [w%]:
30.5 % F6H8
69.5 % Siluron® Xtra

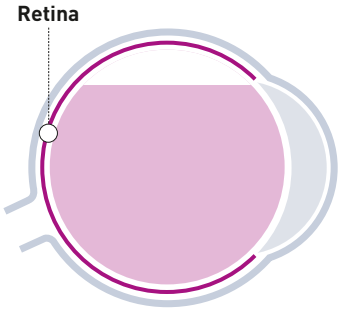
Packaging units

G-80925 Densiron® Xtra Syringe
10 ml syringe, 1 pc. per box, sterile

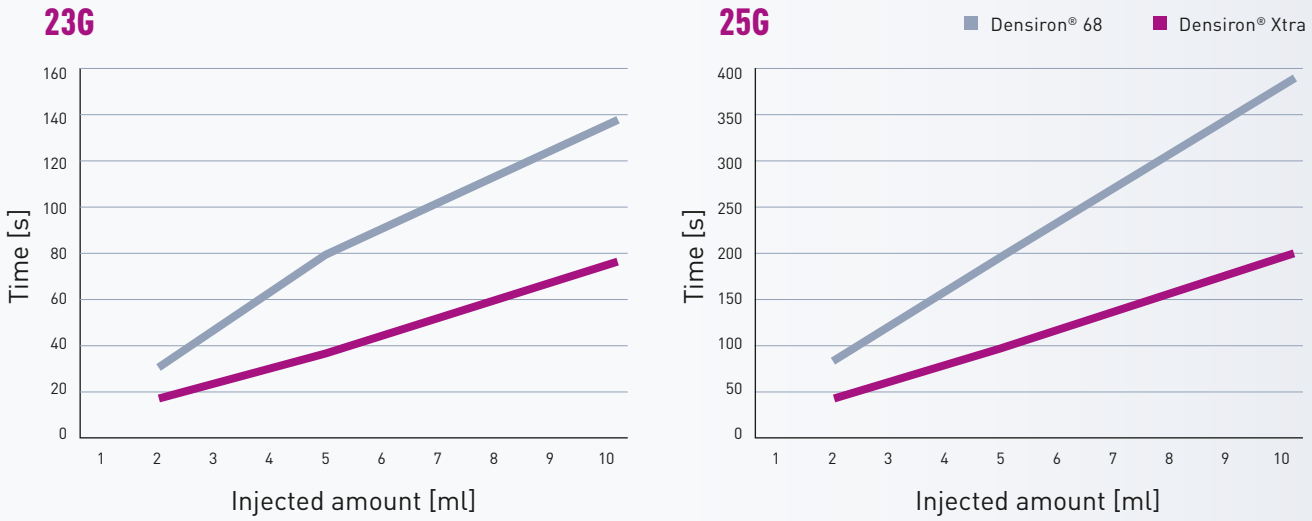
Fields of application

Densiron® Xtra is used as a temporary tamponade after operative treatment of severe retinal detachment, particularly for:

- Inferior and posterior retinal holes
- Retinal detachments with giant tears
- Retinal detachments with proliferative vitreoretinopathy (PVR)
- Retinal detachments in cases of proliferative diabetic retinopathy (PDR)
- Traumatic retinal detachments

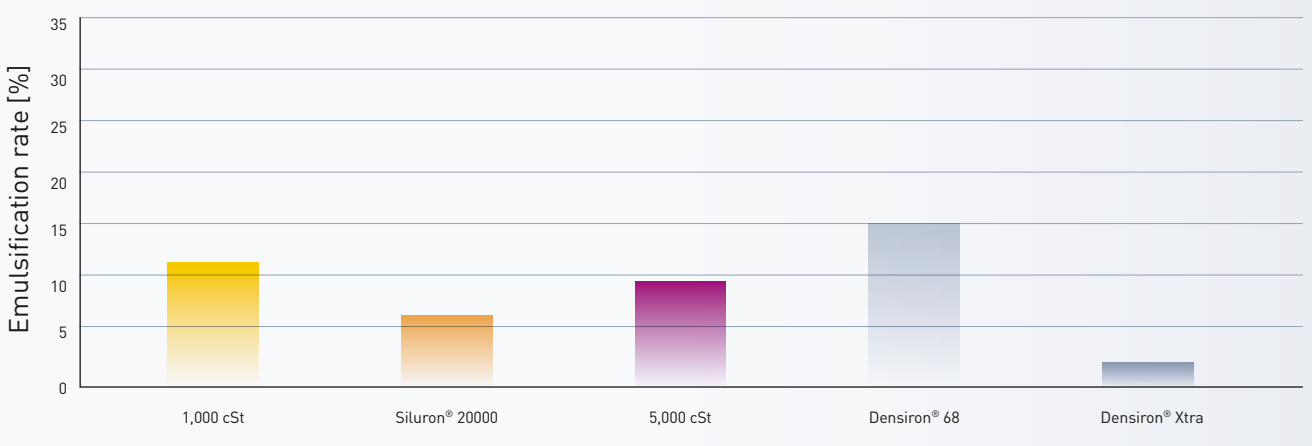


Injection times Densiron® Xtra



Vitrectomy System, 6 bar

In vitro emulsification ranges of various silicone oils when using plasma as emulsifier



Reference: "In vitro emulsification assessment of new silicone oils." Caramoy et al. Br J Ophthalmol. 2010 Apr,94(4):509-12

Testimonials Densiron® Xtra

"Temporal inverted ILM flap technique combined with heavy silicone oil (Densiron Xtra) for macular detachment associated with ODP is a highly effective alternative technique. This procedure achieved very rapid resolution of the submacular fluid with successful anatomical and functional results."

Oncel, M: A Novel Approach for the Management of Macular Detachment Associated with Optic Disc Pit: Temporal Inverted Internal Limiting Membrane Flap Technique and a New Heavy Silicone Oil (Densiron Xtra)

Prof. Francesco Boscia
MD, Associate Professor and Chair at the Department of Ophthalmology at the Sassari University, Sassari, Sardegna (IT)

Which are the key pathologies and why?

"As tamponade in recurrent inferior rhegmatogenous retinal detachment, especially if complicated by severe proliferative vitreoretinopathy."

What features do you like most?

"It can effectively tamponade inferior retina with the patient standing upright (...). I routinely use 25G system and I never met any trouble in injecting and aspirating Densiron Xtra."

What is your conclusion about Densiron Xtra?

"It's an essential surgical tool for every vitreoretinal surgeon who needs to face with complex pathologies. It is effective in tamponing and stabilising the inferior retina and safe at the same time."

Dr. Vignesh Raja
Joondalup Eye Clinic
and Perth Eye Hospital
Perth, Australia

Which are the key pathologies and why?

"I prefer to use Densiron Xtra for pathologies such as persistent macular hole, inferior retinal detachment with PVR, inability to posture face down, recurrent and chronic retinal detachment that need long term silicone oil endotamponade."

What features do you like most?

"I like Densiron Xtra because of its heavier than water property, low risk of emulsification and low risk of developing retinal/macular toxicity. Removal of Densiron is straight forward (with the correct technique) with low risk of residual silicone oil bubbles."

What is your conclusion about Densiron Xtra?

"Densiron Xtra adds to my retinal armamentarium and is my preferred agent for endotamponade in challenging and complicated cases. "

Dr. Theodor Stappler
Médecin adjoint, Unité de chirurgie vitréorétinienne, Hôpital ophtalmique Jules-Gonin, Lausanne (CH)

Which are the key pathologies and why?

"The treatment of inferior proliferation in recurrent retinal detachment (...) to exclude the aqueous environment containing cytokines and proliferative agents entirely from the retinal area which had just been treated."

What features do you like most?

"I can use Densrion Xtra irrespective of the gauge. The process of injection and removal has stopped being lengthy and arduous."

What is your conclusion about Densiron Xtra?

"Easy to inject and aspirate, decreased emulsification rate, yet heavy tamponade agent."

Dr. Andreas Kölbl
Ophthalmic Specialist,
Ophthalmic Private Practice, Eggenburg (AT)

Which are the key pathologies and why?

"Mainly for complicated retinal detachements (PVR) with tear formation and tensions in the inferior segment, also for tractions due to diabetic retinopathy and I´m happy with the results."

What features do you like most?

"The comparable low viscosity and hence the excellent injectability even via 25G sytems (...)."

What is your conclusion about Densiron Xtra?

"I use Densiron Xtra because I feel more secure in complicated retinal detachements with pathologies in the inferior segment for elderly patients for whom correct patient positioning cannot be guaranteed."

Dr. Antonio Palomino Muñoz
Oftalmologo, Hospital Quiron San Jose, Madrid (ES)

Which are the key pathologies and why?

"We use it in all retinal surgery in which are predisposing factors for PVR."

What features do you like most?

"The quality that I appreciate most is the ease of injection, even with 25G. Also its intraocular tolerance and stability against emulsification is apreciable."

What is your conclusion about Densiron Xtra?

"These referred qualities make Densiron Xtra an important ally in complex vitreoretinal surgery improving its prognosis."

F4H5® WashOut

The simple solution for oil residues in vitreoretinal surgery

the Ophthalmologist Innovation Awards 2015

Award-winning

- Unique amphiphilic properties
- Solves silicone oil efficiently
- Removes silcone oil residues and "sticky oil"
- Rinses silicone oil-polluted IOL
- Biocompatible

Composition and properties

Density [g/cm³] at 25° C: 1.28
Viscosity [mPas] at 25° C: 1.05
Mix ratio F4H5 : Silicone oil:
Mix in all ratios

Packaging units

G-80615 F4H5® WashOut Vial
5 ml vial, 1 pc. per box, sterile

Fields of application

F4H5® WashOut is a biocompatible solvent for removing silicone oil residues from the retina and for cleaning intraocular lenses after silicone oil tamponades.

Video

Scan QR-Code for further information on F4H5® WashOut

References

94. Stappler, T., R. Williams and D. Wong. 2010. "F4H5 - A novel substance for the removal of silicone oil from intraocular lenses." British Journal of Ophthalmology 94(3): 364-367. 95. Chan, Y. K., H. C. Cheng, J. Wu, Y. H. M. Tang, S. T. Chan, D. Wong and H. C. Shum, H. 2018. "A perfluorobutylpentane (F4H5)-based solution for the removal of residual emulsified silicone oil. Acta ophthalmologica 96(1): e38-e45. 96. Coppola, M., C. Del Turco, G. Querques and F. Bandello. 2017. "Perfluorobutylpentane (F4H5) solvent-assisted silicone oil removal technique." Retina 37(4): 793-795. 97. Stalmans, P. and D. Wong. 2015. "Cohort Safety & efficacy study of Siluron 2000 emulsification-resistant silicone oil and F4H5 in the treatment of full-thickness macular hole." Retina 35(12): 2558–2566. 98. Tatsios, J., W. Kugler, A. M. Joussen. 2016. "Problem "gelöst": F4H5 als Auswaschlösung für Silikonreste in der Glaskörperchirurgie" German Medical Science GMS Publishing House Doc16rg28. 99. Liang, Y., N. Kociok, M. Leszczuk, W. Hiebl, B. Theisinger, A. Lux and A. M. Joussen, A. M. 2008. "A cleaning solution for silicone IOLs and 'sticky silicone oil'." British Journal of Ophthalmology 92: 1-1.

F6H8® Vitreous Substitute

The rinsing tamponade in vitreoretinal surgery

- Temporary endotamponade in cases of complicated, especially inferior retinal detachments
- "Third hand" when relocating the macula
- Retinal unfolding with low contact pressure
- Rinses IOLs after silicone oil tamponades

Composition and properties

Density [g/cm³] at 25° C: 1.33
Viscosity [mPas] at 25° C: 3.44
Mix ratio F6H8 : Silicone oil:
optimal 50:50 to 30:70

Packaging units

G-80606 Vitreous Subsitute F6H8® Vial
6 ml vial, 1pc. per box, sterile

G-80609 Vitreous Subsitute F6H8® Vial
9 ml vial, 1 pc. per box, sterile

Fields of application

F6H8® serves as an endotamponade in complicated retinal detachments and as an intraoperative tool for retinal surgery. Due to its significantly lower density compared to conventional perfluorocarbon liquids, F6H8® offers enormous advantages particularly for retinal translocation. F6H8® is also an excellent bio-compatible solvent for the removal of silicone oil residues from the vitreous chamber as well as being suitable for cleaning intraocular lenses after a silicone oil tamponade.

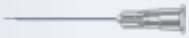
References

100. Wong, D and N. Lois. 2000. "Perfluorocarbons and Semifluorinated Alkanes." Seminars in Ophthalmology Vol. 15, No. 1: 25-35. Taylor & Francis. 101. Meinert, H. and T. Roy. 2000. "Semifluorinated alkanes – A new class of compounds with outstanding properties for use in ophthalmology." European Journal of Ophthalmology 10(3): 189-197. 102. Schatz, B., Y. El-Shabrawi, A. Haas and G. Langmann. 2004. "Adverse side effects with Perfluorohexyloctane as a long-term tamponade agent in complicated vitreoretinal surgery." Retina 24(4): 567-573. 103. Langefeld, S., B. Kirchhof, H. Meinert, T. Roy, A. Aretz and N. F. Schrage. 1999. "A new way of removing silicone oil from the surface of silicone intraocular lenses." Graefe´s archive for clinical and experimental ophthalmology 237(3): 201-206. 104. Kobuch, K., D. H. Menz, H. Hoerauf, J. H. Dresp and V. P. Gabel. 2001. "New substances for intraocular tamponades: perfluorocarbon liquids, hydrofluorocarbon liquids and hydrofluorocarbon-oligomers in vitreoretinal surgery." Graefe's archive for clinical and experimental ophthalmology 239(9): 635-642.

Accessories*

Accessories PFCL

G-33057
Chang
PFCL Cannula
for injection of heavy fluids
dual bore, coaxial
25 gauge / 0.5 mm tip
20 gauge / 0.9 mm shaft



G-34285
Single-Use PFCL Cannula
for injection of heavy fluids
dual bore, coaxial
23 gauge / 0.64 mm
10 pcs. per box, sterile

Single-Use
Backflush Cannula
with silicone brush
5 pcs. per box, sterile
G-34293 20 gauge / 0.9 mm
G-34294 23 gauge / 0.6 mm
G-34297 25 gauge / 0.5 mm

G-37002
Backflush Handpiece
with silicone chamber and
Luer-Lock connector
overall length 115 mm

G-34289
Single-Use
Backflush Handpiece
with silicone chamber, Luer-Lock
10 pcs. per box, sterile

Single-Use
Backflush Cannula
blunt tip
5 pcs. per box, sterile
G-34291 20 gauge / 0.9 mm
G-34296 23 gauge / 0.6 mm
G-34299 25 gauge / 0.5 mm

Accessories EasyGas®

G-80975
Single-Use Injection Cannula
for EasyGas®
30 gauge / 0.3 x 12 mm
100 pcs. per box, sterile

G-34492
Kirchhof
Single-Use Injection Cannula
for gas / viscous fluids
5.0 mm beveled tip with 4 infusion
side ports
2 metal sleeves, Luer-Lock plastic
adapter and 40 cm silicone tube
20 gauge / 0.9 mm
10 pcs. per box, sterile

* Accessories are optional. Further products available on demand.

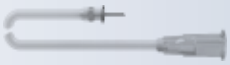
Accessories silicone oils

Heidelberg Model
Cannula
for injection or aspiration
of viscous fluids
and Densiron® 68, bevel 30°
G-32699 19 gauge / 1.1 mm
G-32698 18 gauge / 1.2 mm

G-33056
Roider
Aspiration Cannula
for viscous fluids
0.7 mm side port
19 gauge / 1.0 mm

Single-Use Cannula
to inject silicone oil
10 pcs. per box, sterile
G-34497 20 gauge / 0.9 mm x 8 mm
G-34498 23 gauge / 0.6 mm x 8 mm

Hamburg Model
Injection Cannula
for viscous fluids
25 cm silicone tube with metal sleeve
and Luer-Lock adapter
3 spare silicone tubes
G-33470 20 gauge / 0.9 mm, beveled, 4 mm
G-33471 20 gauge / 0.9 mm, beveled, 5 mm
G-33472 20 gauge / 0.9 mm, beveled, 6 mm
G-33473 23 gauge / 0.6 mm, beveled, 4 mm
G-33474 23 gauge / 0.6 mm, beveled, 6 mm



Single-Use Injection Cannula
for viscous fluids
with 1 metal sleeve, Luer-Lock
plastic adapter
and 25 cm PVC tube
20 gauge / 0.9 mm
5 pcs. per box, sterile
G-33488 beveled tip, 4.0 mm
G-33489 beveled tip, 6.0 mm

G-33482
Single-Use Injection Cannula
for viscous fluids, self-retaining,
4.0 mm tip
with 25 cm PVC tube
Luer-Lock plastic adapter
20 gauge / 0.9 mm
5 pcs. per box, sterile

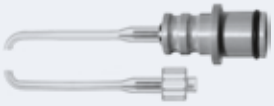
G-34480
Single-Use Injection Cannula
for viscous fluids
4.0 mm beveled tip
with 2 metal sleeves, Luer-Lock
plastic adapter
and 25 cm silicone tube
19 gauge / 1.1. mm
10 pcs. per box, sterile

Accessories*

Accessories silicone oils

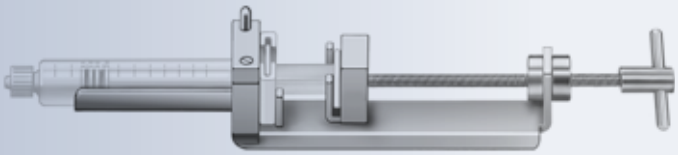
G-32697
Pressure Tube (reusable)
for injection of viscous fluids
Luer-Lock female / male

G-32696
Single-Use Pressure Tube
for injection of viscous fluid,
Luer-Lock female / male
10 pcs. per box, sterile



Stopper
for viscous fluid aspiration
with tube connection for single-use syringe
G-33065 10 ml syringe
G-33066 20 ml syringe

G-28766
Single-Use Oil Injection System
to inject silicone oil pneumatically,
with protective cover for glass syringe,
pressure tube fits megaTRON® S3 / S4 HPS and Pentasys®**, sterile
(G-28767 for megaTRON® and Accurus®, G-28768 for Millennium®)**



G-28752
Syringe Holder
for manual injection of
viscous fluids in glass syringes,
with clamp and retraction mechanism

* Accessories are optional. Further products available on demand.

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„ACCURUS®" is a registered trademark of Alcon Laboratories, Inc.
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Fluoron

Purity and variety made in Germany

Fluoron GmbH, based in Ulm, Germany, was founded in 1996 by Prof. Dr. Hasso Meinert and is a sister company of Geuder AG, Heidelberg. With his intellectual property rights, Prof. Meinert laid the foundation for a successful development of the company and accompanied Fluoron GmbH over 10 years on scientific topics. The company is managed by Mr Volker Geuder.

Fluoron GmbH develops and manufactures ultrapure innovative biomaterials for retinal and cataract surgery.

In this field, Fluoron GmbH plays a worldwide leading role in providing ophthalmic surgeons with creative and efficient solutions and consolidated its international competitive position by acquiring extensive intellectual property rights. The company's competence focuses on the development, manufacture and regulatory approval of light and heavy tamponades for retinal surgery, perfluorohydrocarbons and semifluorinated alkanes as temporary tamponades, as well as dyes for anterior and posterior segment surgery.

Fluoron GmbH reserves the right to make changes to compositions of their substances in response to recent developments. Fluoron GmbH and GEUDER AG do not assume liability for the accuracy of given statements. For questions regarding their products and availability please contact GEUDER AG.

Illustrations not drawn to scale.

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