



**FOR MORE THAN 20 YEARS
THE OLDEST OPHTHALMIC GAS MANUFACTURERES
IN EUROPE**





PDMS

INTRAOCULAR SILICON OIL



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PFCL

LIQUID PERFLUOROCARBON



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MICROGAS^{SF6}

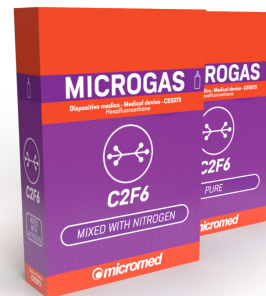
GAS FOR INTRAOCULAR USE



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MICROGAS^{C2F6}

GAS FOR INTRAOCULAR USE



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GAS FOR INTRAOCULAR USE



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PDMS

INTRAOCCULAR SILICON OIL



PDMS is used for long-term (at least 30 days) ocular tamponade after vitrectomy surgery.

PDMS undergoes scrupulous biocompatibility testing before packaging, and the chemical analysis performed allows us to guarantee high purity of the silicone oil due to the presence of a very low percentage of volatile chains (0.1%).

This product line was approved for marketing in 1999 and is a Class IIB medical device.

Silicones have been used in the medical field for about fifty years. No other material is sufficiently biocompatible, reliable, flexible and easily sterilized as silicone.

Liquid PDMS is indicated and recommended in all world pharmacopoeias for use as a medical device. It is odorless, tasteless, does not support bacterial growth and does not react with other materials, but most importantly, it has high compatibility with human tissues and body fluids.

Several product categories belong to the PDMS family, which differ from each other based on the primary packaging and viscosity of the silicone oil mixture.

Micromed PDMS is marketed in different viscosity variants:

PDMS 1000 characterized by the presence of chain lengths with a standard deviation less than 0.02% and a typical viscosity of 1000 centiStokes; its braking index is conventionally set at 1.

The **PDMS 1300** centiStokes with the same characteristics but with a 4% higher braking index.

PDMS 2000 has a braking index greater than 15 percent and is indicated in cases where emulsification with protein fluids in the eye is likely to occur independent of surgery.

The latest variant is the **PDMS 5000** which has a braking index greater than 70 percent and is indicated in cases where retinal manipulation has been significant, such as in the case of strong overhanging treatments on major cerclages and for more than 40 percent of the retinal surface, or in the case of major retinotomies in the presence of cerclage or large retractions

PDMS

GLASS SYRINGE

INTRACULAR SILICON OIL



PDMS GLASS SYRINGE

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The **Micromed PDMS Glass Syringe** device consists of a glass syringe pre-filled with 10cc of silicone oil (**1000, 1300, 2000 and 5000 cSt**), the kit is completed by the presence of a luer lock adapter and a 23g cannula.

CODE	DESCRIPTION	NAME
MMD-665 / MMD-665A	10 cc glass syringe preloaded with pdms 1000cst luer lock adapter cannula 23g	PDMS 1000 Glass Syringe
MMD-675 / MMD-675A	10 cc glass syringe preloaded with pdms 5000cst luer lock adapter cannula 23g	PDMS 5000 Glass Syringe
MMD-686/ MMD-686A	10 cc glass syringe preloaded with pdms 1300cst luer lock adapter cannula 23g	PDMS 1300 Glass Syringe
MMD-696/ MMD-696A	10 cc glass syringe preloaded with pdms 2000cst luer lock adapter cannula 23g	PDMS 2000 Glass Syringe

PDMS

REFILL

INTRAOCCULAR SILICON OIL



PDMS REFILL

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The **Micromed PDMS Refill** device consists of a plastic syringe pre-filled with 10cc of silicone oil (**1000, 1300, 2000 and 5000 cSt**), the kit is completed by the presence of a three-way valve.

CODE	DESCRIPTION	NAME
MMD-630	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10cc• PDMS 1000cST• Three-way faucet	PDMS 1000 Refill
MMD-640	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10cc• PDMS 5000cST• Three-way faucet	PDMS 5000 Refill
MMD-680	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10cc• PDMS 1300cST• Three-way faucet	PDMS 1300 Refill
MMD-690	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10cc• PDMS 2000cST• Three-way faucet	PDMS 2000 Refill



PDMS

VIAL

INTRAOCCULAR SILICON OIL



PDMS VIAL

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

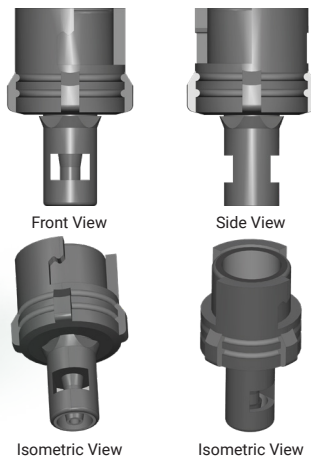
The **Micromed PDMS Vial** device consists of a glass vial pre-filled with silicone oil (**1000, 1300, 2000 and 5000cSt**). The 1000 cSt and 5000 cSt variants are available in 10cc and 15cc vials of silicone oil.

CODE	DESCRIPTION	NAME
MMD-731	20 ml glass vial filled to 10 cc with PDMS 1300 cST	PDMS 1300 Vial
MMD-755	20 ml glass vial filled to 10 cc with PDMS 1000 cST	PDMS 1000 Vial
MMD-758 <i>made to order</i>	20-mL glass vial filled to 15 cc with PDMS 1000 cST	PDMS 1000 Vial
MMD-771	20 ml glass vial filled to 10 cc with PDMS 5000 cST	PDMS 5000 Vial
MMD-772 <i>made to order</i>	20-mL glass vial filled to 15 cc with PDMS 5000 cST	PDMS 5000 Vial
MMD-791	20 ml glass vial filled to 10 cc with PDMS 2000 cST	PDMS 2ZZ000 Vial

PDMS

DISPENSER

INTRAOCCULAR SILICON OIL



PDMS DISPENSER

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The Micromed PDMS Dispenser device consists of a plastic syringe pre-filled with 10cc of silicone oil (1000, 1300, 2000, 5000 cSt). In addition to viscosity, Dispenser syringes also differ from each other in the four different types of connectors in the kit: **luer lock M connector, Accurus connector, Millennium connector, and Oertli connector**. Different configurations are marketed under different codes.



Accurus connector

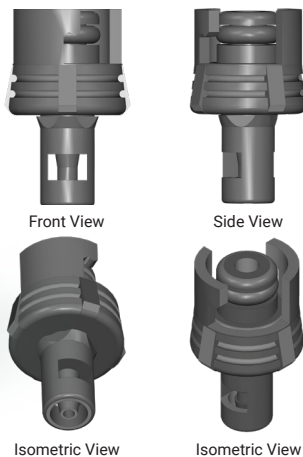
All pneumatic syringes with dispensers are produced with an **Accurus** type adapter and are therefore always available in stock. The other versions are to be understood as made to order and must be agreed directly with the **Sales Manager**.

CODE	DESCRIPTION	NAME
MMD-655A	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc PDMS 1000cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 1000 Accurus Dispenser
MMD-658A <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc PDMS 1000cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 1000 Accurus Dispenser
MMD-671A	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc PDMS 5000cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 5000 Accurus Dispenser
MMD-672A <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc PDMS 5000cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 5000 Accurus Dispenser
MMD-683A	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc PDMS 1300cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 1300 Accurus Dispenser
MMD-693A	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc PDMS 2000cst • Medical ABS Dispenser • PVC pipe 160cm with Accurus connector • 23G cannula 	PDMS 2000 Accurus Dispenser

PDMS

DISPENSER

INTRAOCCULAR SILICON OIL



PDMS DISPENSER

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The Micromed PDMS Dispenser device consists of a plastic syringe pre-filled with 10cc of silicone oil (1000, 1300, 2000, 5000 cSt). In addition to viscosity, Dispenser syringes also differ from each other in the four different types of connectors in the kit: **luer lock M connector, Accurus connector, Millennium connector, and Oertli connector**. Different configurations are marketed under different codes.



Millenium connector

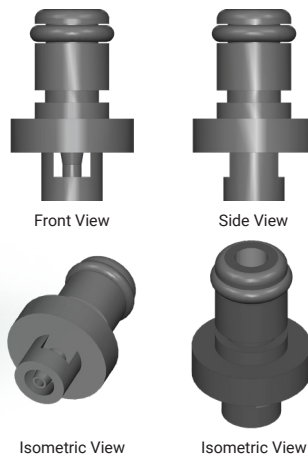
All pneumatic syringes with dispensers are produced with an **Accurus** type adapter and are therefore always available in stock. The other versions are to be understood as made to order and must be agreed directly with the **Sales Manager**.

CODE	DESCRIPTION	NAME
MMD-655M	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 1000cST • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 1000 Millenium Dispenser</p>
MMD-658M <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc • PDMS 1000cST • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 1000 Millenium Dispenser</p>
MMD-671M	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 5000cST • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 5000 Millenium Dispenser</p>
MMD-672M <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc • PDMS 5000cST • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 5000 Millenium Dispenser</p>
MMD-683M	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 1300cst • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 1300 Millenium Dispenser</p>
MMD-693M	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 2000cST • Medical ABS Dispenser • PVC pipe 160cm with Millenium connector • 23G cannula 	<p>PDMS 2000 Millenium Dispenser</p>

PDMS

DISPENSER

INTRAOCCULAR SILICON OIL



PDMS DISPENSER

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The Micromed PDMS Dispenser device consists of a plastic syringe pre-filled with 10cc of silicone oil (**1000, 1300, 2000, 5000 cSt**). In addition to viscosity, Dispenser syringes also differ from each other in the four different types of connectors in the kit: **luer lock M connector, Accurus connector, Millennium connector, and Oertli connector**. Different configurations are marketed under different codes.



Oertli connector

All pneumatic syringes with dispensers are produced with an **Accurus** type adapter and are therefore always available in stock. The other versions are to be understood as made to order and must be agreed directly with the **Sales Manager**.

CODE	DESCRIPTION	NAME
MMD-6550	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 1000cST • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 1000 Dispenser Oertli
MMD-6580 <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc • PDMS 1000cST • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 1000 Dispenser Oertli
MMD-6710	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 5000cST • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 5000 Dispenser Oertli
MMD-6720 <i>made to order</i>	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 15 cc • PDMS 5000cST • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 5000 Dispenser Oertli
MMD-6830	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 1300cst • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 1300 Dispenser Oertli
MMD-6930	<ul style="list-style-type: none"> • 30 ml plastic syringe pre-filled with 10 cc • PDMS 2000cST • Medical ABS Dispenser • PVC pipe 160cm with Oertli connector • 23G cannula 	PDMS 2000 Dispenser Oertli

PDMS

DISPENSER

INTRAOCCULAR SILICON OIL



PDMS DISPENSER

Polydimethylsiloxane (PDMS) is a highly viscous oily liquid whose high purity and transparency allows long-term temporary replacement of the vitreous body.

PRODUCT ASSORTMENT

The Micromed PDMS Dispenser device consists of a plastic syringe pre-filled with 10cc of silicone oil (**1000, 1300, 2000, 5000 cSt**). In addition to viscosity, Dispenser syringes also differ from each other in the four different types of connectors in the kit: **luer lock M connector, Accurus connector, Mille-nium connector, and Oertli connector**. Different configurations are marketed under different codes.

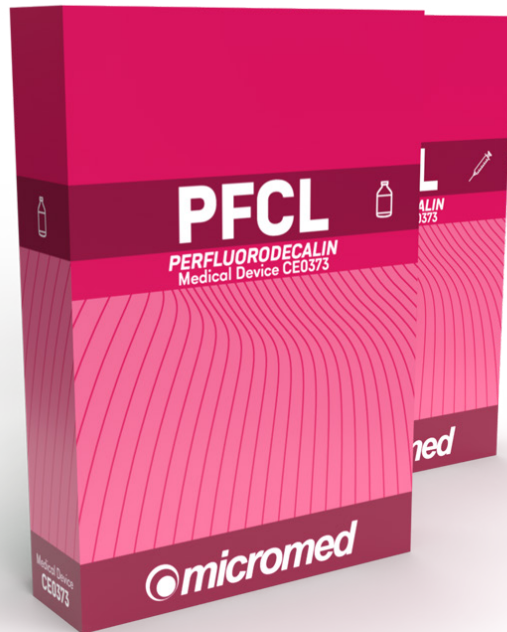


All pneumatic syringes with dispensers are produced with an **Accurus** type adapter and are therefore always available in stock. The other versions are to be understood as made to order and must be agreed directly with the **Sales Manager**.

CODE	DESCRIPTION	NAME
MMD-655	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10 cc PDMS 1000cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 1000 Dispenser
MMD-658 <i>made to order</i>	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 15 cc PDMS 1000cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 1000 Dispenser
MMD-671	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10 cc PDMS 5000cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 5000 Dispenser
MMD-672 <i>made to order</i>	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 15 cc PDMS 5000cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 5000 Dispenser
MMD-683	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10 cc PDMS 1300cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 1300 Dispenser
MMD-693	<ul style="list-style-type: none">• 30 ml plastic syringe pre-filled with 10 cc PDMS 2000cst• Medical ABS Dispenser• Pvc tube 160cm with luer-lock connector M• 23G cannula	PDMS 2000 Dispenser

PFCL

LIQUID PERFLUOROCARBON



The device in question is fluorinated octadecafluorodecahydronaphthalene (cis+trans), also known as perfluorodecalin (**PFD**).

The PFD underwent biocompatibility testing before packaging.

PFCL (Perfluorodecaline) is a high-purity, high-transparency, high-density liquid used for temporary tamponade of the vitreous chamber during eye surgery, with a maximum residence time inside the eye of one hour. The PFCL (perfluorocarbon for eye surgery) medical device belongs to Class IIA medical devices.

PFCL belongs to a line of products approved for marketing since 1998 (by Notified Body 0373, EC Certificate 081QPT011) and registered in the Italian Ministry of Health database since 2008.

The **PFCL** is inserted into the vitreous cavity after carefully removing the central vitreous and, if necessary, the peripheral vitreous. Before infusion, it is necessary to make sure that there is no free vitreous that can mix with PFCL.

PFCL should be removed from the eye within a maximum of one hour after contact.

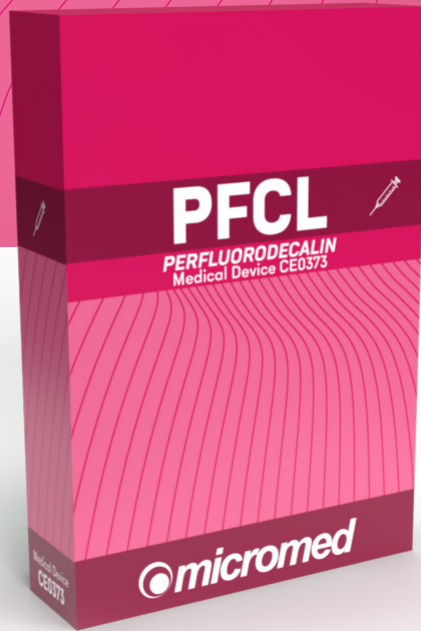
Perfluorocarbons are colorless, nontoxic, chemically and physiologically inert compounds that are widely used in vitreoretinal surgery for retinal distension. The surface and contact tension are such that there is no risk of passage of these compounds under the retina in giant ruptures. Due to their high density, which in the case of PFCL (Perfluorodecalin) has a typical value of 1.941 g/ml, perfluorocarbons are also considered excellent products for distending and re-adhering detached retina.

Perfluorocarbons cannot be used long-term; they are only allowed to be used intraoperatively and must be removed at the end of the surgical procedure because their stay in the eye induces retinal changes within a relatively short time.

PFCL

SYRINGE

LIQUID PERFLUOROCARBON



PFCL GLASS SYRINGE

Perfluoro Carbon Liquid (PFCL) are medical devices consisting of a high-density liquid used as short-term intraocular entrapments.

PRODUCT ASSORTMENT

The **PFCL Glass Syringe** Medical Device consists of a glass syringe pre-filled with 7cc of **Perfluoro Decaline** is a 25G needle to complete the kit.

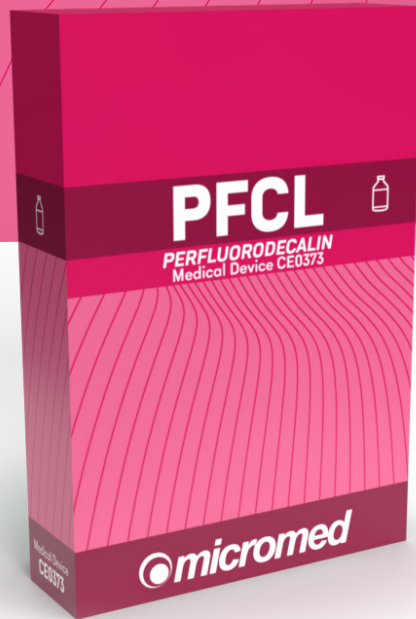


CODE	DESCRIPTION	NAME
MMD-747	Pre-filled glass syringe 7cc Needle 25G	PFCL Glass Syringe

PFCL

VIAL

LIQUID PERFLUOROCARBON



PFCL VIAL

Perfluoro Carbon Liquid (PFCL) are medical devices consisting of a high-density liquid used as short-term intraocular entrapments.

PRODUCT ASSORTMENT

The **PFCL Vial** medical device consists of a glass vial pre-loaded with 5, 7 or 10cc of Perfluoro Decaline, the kit consists of a PP syringe and two needles one 18G and one 25G.



CODE	DESCRIPTION	NAME
MMD-749	Glass vial 20 cc filled to 7 cc pp syringe 10cc Needle 25G / Needle 18G	PFCL Vial
MMD-750	Glass vial 10 cc filled to 5 cc pp syringe 10cc Needle 25G / Needle 18G	PFCL Vial
MMD-751 <i>made to order</i>	Glass vial 20 cc filled to 10 cc pp syringe Needle 25G / Needle 18G	PFCL Vial

MICROGAS

GAS FOR INTRAOCULAR USE



Initially, the only buffering agent used was air due to the strong difference in surface tension compared to water. Air, is, however, easily and quickly reabsorbed not promoting healing of the eyeball after vitrectomy surgery, so other nontoxic gaseous substances have been studied that can remain in the eye for a longer time.

Fluorinated compounds such as sulfur hexafluoride (SF₆), or perfluorocarbons such as perfluoromethane (CF₄), perfluoroethane (C₂F₆) and perfluoropropane (C₃F₈) were selected.

MicroSF₆ (pure or mixed) is a Class IIB implantable medical device. It is a high molecular weight gas used in vitrectomy, ab-external surgery, and pneumatic retinopexy. The product is intended to replace the vitreous humor and has a residence time in the eye of 1-2 weeks.

The device should be used in a sterile field, only by ophthalmologists experienced in vitreo-retinal surgery.

The **MicroSF₆** is inserted into a compact bubble at the end of the vitrectomy procedure after a fluid exchange with air. The gases contained in the intraocular bubble go into solution with the fluids adjacent to it and leave the eye over time, diffusing into the bloodstream. In contrast, gases contained in the blood stream enter the bubble regulated by the partial pressure of each gas in its environment.

Then nitrogen and other air components diffuse toward the bubble containing SF₆, while SF₆ will diffuse toward the blood.

Fundamental is the speed of diffusion; while SF₆ will exit the eye slowly, the faster the nitrogen dissolved in the blood will enter the bubble since SF₆ has a molecular weight 5 times greater than nitrogen. This results in an expansion of the gas bubble in the eye by acquisition of nitrogen from the blood, up to a maximum beyond which, the nitrogen pressure now being equal to that of the blood, it can only be reabsorbed.

This behavior allows the bubble to remain longer in the eye, but with the drawback that it can cause hypertone. The introduction of a bubble of gas mixed with nitrogen reduces the diffusion rate of nitrogen, preventing hypertone.

MICROGAS

SF6 MIXED
GAS FOR INTRAOCULAR USE



MICROGAS SF6 MIXED

MicroSF6 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing the vitreous and promoting retinal adhesion. During the average residence time in the eye (about 1-2 weeks) the gas is gradually replaced by aqueous humor and exhaled

PRODUCT ASSORTMENT

The MicroSF6 Mixed device is available in one variant in which SF6 is mixed with 20 percent nitrogen. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

CODE	DESCRIPTION	NAME
MMD-780	Canister pre-filled with SF6 Gas mixed with <ul style="list-style-type: none">• 20% nitrogen and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe• 3-way tap• Needle 27 G AND Needle 30 G	MICROSF6 Mixed



MICROGAS

SF6 PURE
GAS FOR INTRAOCCULAR USE



MICROGAS SF6 PURE

MicroSF6 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing the vitreous and promoting retinal adhesion. During the average residence time in the eye (about 1-2 weeks) the gas is gradually replaced by aqueous humor and exhaled.

PRODUCT ASSORTMENT

The MicroSF6 Puro device is available in one variant in which the SF6 is 100% pure. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

Pure gases should be mixed with nitrogen before use.

CODE	DESCRIPTION	NAME
MMD-781	Pre-filled canister with <ul style="list-style-type: none">• Pure SF6 Gas and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe• 3-way tap• Needle 27 G AND Needle 30 G	MICROSF6 Pure



MICROGAS

GAS FOR INTRAOCULAR USE



Initially, the only buffering agent used was air due to the strong difference in surface tension compared to water. Air, is, however, easily and quickly reabsorbed not promoting healing of the eyeball after vitrectomy surgery, so other nontoxic gaseous substances have been studied that can remain in the eye for a longer time.

Fluorinated compounds such as sulfur hexafluoride (SF₆), or perfluorocarbons such as perfluoromethane (CF₄), **perfluoroethane (C₂F₆)** and perfluoropropane (C₃F₈) were selected.

MicroC₂F₆ (pure or mixed) is a Class IIB implantable medical device. It is a high molecular weight gas used in vitrectomy, ab-external surgery, and pneumatic retinopathy. The product is intended to replace the vitreous humor and has a residence time in the eye of 4-5 weeks.

The device should be used in a sterile field, only by ophthalmologists experienced in vitreo-retinal surgery.

The **MicroC₂F₆** is inserted into a compact bubble at the end of the vitrectomy procedure after a fluid exchange with air. The gases contained in the intraocular bubble go into solution with the fluids adjacent to it and leave the eye over time, diffusing into the bloodstream. In contrast, gases contained in the blood stream enter the bubble regulated by the partial pressure of each gas in its environment.

Then nitrogen and other air components diffuse toward the bubble containing C₂F₆, while C₂F₆ will diffuse toward the blood.

Fundamental is the speed of diffusion; while C₂F₆ will exit the eye slowly, the faster the nitrogen dissolved in the blood will enter the bubble since C₂F₆ has a molecular weight 5 times greater than nitrogen. This results in an expansion of the gas bubble in the eye by acquisition of nitrogen from the blood, up to a maximum beyond which, the nitrogen pressure now being equal to that of the blood, it can only be reabsorbed.

This behavior allows the bubble to remain longer in the eye, but with the drawback that it can cause hypertone. The introduction of a bubble of gas mixed with nitrogen reduces the diffusion rate of nitrogen, preventing hypertone.

MICROGAS

C2F6 MIXED
GAS FOR INTRAOCULAR USE



MICROGAS C2F6 MIXED

MicroC2F6 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing vitreous and promoting retinal adhesion. During the average residence time in the eye (about 4-5 weeks) the gas is gradually replaced by aqueous humor and exhaled.

PRODUCT ASSORTMENT

The MicroC2F6 Mixed device is available in one variant in which C2F6 is 16% mixed with nitrogen. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

CODE	DESCRIPTION	NAME
MMD-784	Canister pre-filled with C2F6 Gas mixed with <ul style="list-style-type: none">• 16% nitrogen and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe,• 3-way tap• Needle 27 G AND Needle 30 G	MICROC2F6 Mixed



MICROGAS

C2F6 PURE
GAS FOR INTRAOCULAR USE



MICROGAS C2F6 PURE

MicroC2F6 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing vitreous and promoting retinal adhesion. During the average residence time in the eye (about 4-5 weeks) the gas is gradually replaced by aqueous humor and exhaled.

PRODUCT ASSORTMENT

The **MicroC2F6 Puro** device is available in one variant in which C2F6 is 100% pure. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

Pure gases should be mixed with nitrogen before use.

CODE	DESCRIPTION	NAME
MMD-785	Pre-filled canister with <ul style="list-style-type: none">• C2F6 Pure Gas and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe• 3-way tap• Needle 27 G and Needle 30 G	MICROC2F6 Pure



MICROGAS

GAS FOR INTRAOCULAR USE



Initially, the only buffering agent used was air due to the strong difference in surface tension compared to water. Air, is, however, easily and quickly reabsorbed not promoting healing of the eyeball after vitrectomy surgery, so other nontoxic gaseous substances have been studied that can remain in the eye for a longer time.

Fluorinated compounds such as sulfur hexafluoride (SF₆), or perfluorocarbons such as perfluoromethane (CF₄), perfluoroethane (C₂F₆) and **perfluoropropane (C₃F₈)** were selected.

MicroC₃F₈ (pure or mixed) is a class IIB implantable medical device. It is a high molecular weight gas used in vitrectomy, ab-external surgery, and pneumatic retinopexy. The product is intended to replace the vitreous humor and has a residence time in the eye of 7-8 weeks.

The device should be used in a sterile field, only by ophthalmologists experienced in vitreo-retinal surgery.

The **MicroC₃F₈** is inserted into a compact bubble at the end of the vitrectomy procedure after a fluid exchange with air. The gases contained in the intraocular bubble go into solution with the fluids adjacent to it and leave the eye over time, diffusing into the bloodstream. In contrast, gases contained in the blood stream enter the bubble regulated by the partial pressure of each gas in its environment.

Then nitrogen and other air components diffuse toward the bubble containing C₃F₈, while C₃F₈ will diffuse toward the blood.

Crucial is the speed of diffusion; while C₃F₈ will slowly exit the eye, the faster the nitrogen dissolved in the blood will enter the bubble as C₃F₈ has a molecular weight 5 times greater than nitrogen. This results in an expansion of the gas bubble in the eye by acquisition of nitrogen from the blood, up to a maximum beyond which, the nitrogen pressure now being equal to that of the blood, it can only be reabsorbed.

This behavior allows the bubble to remain longer in the eye, but with the drawback that it can cause hypertone. The introduction of a bubble of gas mixed with nitrogen reduces the diffusion rate of nitrogen, preventing hypertone.

MICROGAS

CF38 MIXED
GAS FOR INTRAOCULAR USE



MICROGAS C3F8 MIXED

MicroC3F8 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing vitreous and promoting retinal adhesion. During the average residence time in the eye (about 7-8 weeks), the gas is gradually replaced by aqueous humor and exhaled.

PRODUCT ASSORTMENT

The MicroC3F8 Mixed device is available in a single variant in which C3F8 is mixed at 12 percent with nitrogen. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

CODE	DESCRIPTION	NAME
MMD-787	Canister pre-filled with C3F8 Gas mixed with <ul style="list-style-type: none">• 12% nitrogen and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe• 3-way tap• Needle 27 G AND Needle 30 G	MICROC3F8 Mixed



MICROGAS

CF38 PURE
GAS FOR INTRAOCULAR USE



MICROGAS C3F8 PURE

MicroC3F8 (pure or mixed) is injected into the vitreous chamber for the purpose of replacing vitreous and promoting retinal adhesion. During the average residence time in the eye (about 7-8 weeks), the gas is gradually replaced by aqueous humor and exhaled.

PRODUCT ASSORTMENT

The **MicroC3F8 Puro** device is available in one variant in which C3F8 is 100% pure. Besides the gas canister, the kit consists of a Connector, a 0.2 μ Sterilizing Filter, a 60 ml PP Syringe, a 3-way Tap, a 27 G Needle and a 30 G Needle.

Pure gases should be mixed with nitrogen before use.

CODE	DESCRIPTION	NAME
MMD-788	Pre-filled canister with <ul style="list-style-type: none">• C3F8 Pure Gas and Connector• 0.2 μ sterilizing filter• 60 ml PP syringe• 3-way tap• Needle 27 G and Needle 30 G	MICROC2F6 Pure





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