

Application Sheet

Fiflow® products are fully fluorinated Perfluorocarbons, which have a capacity to carry gases, notably Oxygen, Nitrogen and Carbon Dioxide. They are inert materials, and they are not oil soluble or water soluble, hence they create a third phase in emulsions. Fiflows® are stable, heavy liquids and even the most volatile ones are safe to use as they have no flash point. Fiflows normally contain air, but they can be enriched with other gases such as Oxygen. Products with Fiflows® need to be packaged in airless packaging. If not, there can be foam formation in the product as there will happen gas exchange between the Fiflow and the surrounding air.

Trade Name	INCI Name
Fiflow® AC	Perfluorohexane (and) Perfluoroperhydrophenanthrene (and) Perfluorodecalin (and) Perfluorodimethylcyclohexane
Fiflow® BTX	Perfluorohexane (and) Perfluoroperhydrophenanthrene (and) Perfluorodecalin (and) Perfluorodimethylcyclohexane
Fiflow® SC	Perfluorohexane (and) Perfluorodecalin (and) Perfluoroperhydrophenanthrene (and) Perfluorodimethylcyclohexane
Fiflow® BB 61	Perfluorohexane (and) Perfluorodecalin (and) Pentafluoropropane
Fiflow® BB 76	Perfluorohexane (and) Perfluorodecalin (and) Pentafluoropropane

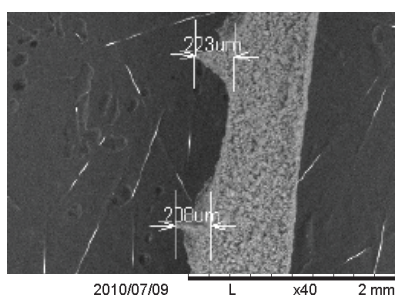
Benefits

- fast penetration
- capacity to carry gases, notably Oxygen and Carbon Dioxide
- wound healing
- muscular relaxation
- dermal filler
- soft skin feel
- bubbling effect (Fiflow® BB 61 and 76)

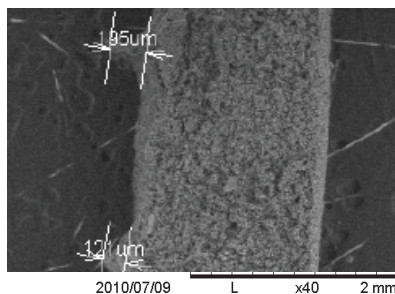
Properties

- inert
- hydro- and lipophobic
- dielectric
- high density
- high volatility

Volumizing lip treatment with Fiflow®

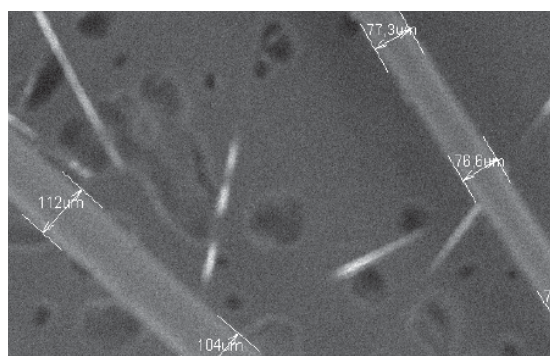


SEM Picture:
Surface of the lips before Fiflow® treatment. Depth of the wrinkles measured 208-223um.



SEM Picture:
Surface of the lips 5 minutes after the use of Fiflow® treatment. Depth of the wrinkles measured 195-121um.

Fiflow® volumizing hair structure



SEM Picture:
On the right side untreated hair. Measurements before applying Fiflow® treatment 73,2-77,3 um. On the left side hair after treated with 10% of Fiflow® in a serum (1703-3/2010). Measurements after the application of Fiflow® treatment 104-112um.

Application Areas

Skin Care

Fiflow® BTX is an ideal ingredient for anti-wrinkle products as it has an instantaneous dermal filling and muscular relaxation effect. It also has long-term effects due to its capacity to supply Oxygen to the skin. Fiflow® BTX has such molecular weight that its penetration is optimised for anti-wrinkle products.

Fiflow® SC is designed for skin rejuvenating and regenerating products as it improves skin renewal and skin elasticity. Due to its molecular weight, Fiflow® SC allows the Oxygen to be carried gradually into the skin over a longer period of time.

Fiflow® AC is developed for anti-cellulite products since it can improve the metabolism and renewal of connective tissue. Fiflow® AC penetrates the skin fast without leaving an unpleasant residue.

Fiflow® BB products provide instant bubbling effects for skin care applications. They are ideal for bath and cleansing products or mask and serum applications, where visual foaming is desired.

Fiflows® can be included in any type of skin care products, typically emulsions and serums.

Sun Care

Fiflow® SC is ideal for after sun products due to its skin renewing property. It helps to repair UV-light induced skin damage.

Colour Care

Fiflows® can also be used in colour care products as anti-age actives. Fiflow® BTX is especially suitable for anti-wrinkle foundations and volumizing lip glosses.

Formulating

Fiflows® can be used in all types of emulsions and also in anhydrous systems. The only limitations in formulating with Fiflows® is their high volatility and density. They have to be added into formulations at a temperature below 35°C and the viscosity of the formulation needs to be high enough to avoid the separation of Fiflows®.

Fiflows® are not water nor oil soluble so they are not added to the water phase nor the oil phase, but directly to the emulsion after emulsification with high shear stirring. Fiflows® create a third phase in the emulsion and become part of the emulsion structure.

Due to the gas content, some bubbling can occur in formulations containing Fiflows®. To avoid the bubbling, the formulations can be prepared under a vacuum.

Typical use level: 2-15%

Gas Loading into Fiflows®

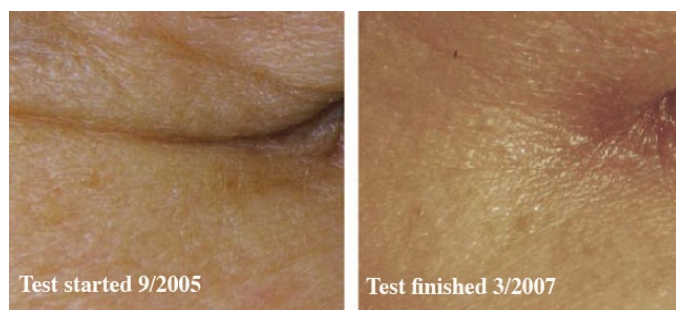
Fiflows® naturally contain air and therefore they always contain some Oxygen, but if desired, Fiflows® can be enriched with extra Oxygen by a simple process.

Medical grade Oxygen can be bubbled into the Fiflows® at a rate of 3-4 litres per minute for 10 minutes per kilogram. After the Oxygen loading, Fiflows® should be kept in a sealed container to prevent Oxygen loss.

NOTE: Always use airless packaging.

Packaging: 1kg and 5kg aluminium bottles

Long-term efficacy test on wrinkles



Picture: Number and depth of wrinkles decreased dramatically after a 18 months of Fiflow® BTX treatment