



FIFLOW®

IMPACT OF FIFLOW® BTX ON REDNESS AND BRIGHTENING

FIFLOW® products are fully fluorinated perfluorocarbons, which have a high capacity to carry gases, notably Oxygen, Nitrogen and Carbon Dioxide.

Fiflows are completely inert, stable and heavy liquids (density above 1,8). Even the most volatile Fiflow® are safe to use, and they have no flash point.

Fiflows have specific surface characteristics. They are not oil soluble or water soluble, but omniphobic repelling other ingredients in the formulation, acting as a co-emulsifier. Fiflows create instantly a third phase and stabilizes the emulsion increasing considerably the hexagonal structure of the micelle.

The surface charge of Fiflows is very negative and hence Fiflows are very easy materials to formulate with.

No incompatibility with any cosmetic ingredients is known, as very inert materials, Fiflows are not sensitive to any chemical reactions.

Fiflows provide an instant refreshing and brightening effect to the skin, ideal in Asia, due to its very emollient character, creating a thin film application. They improve texture in formulations offering a very smooth and soft feel.

FIFLOW® BTX is based on a blend of medical grade perfluorocarbons (Inci name : Perfluorohexane (and) Perfluoroperhydrophenanthrene (and) Perfluorodecalin (and) Perfluorodimethylcyclohexane)

Tests used

Videoscope

Skin Colour

Ultrasound

Its performance is based on four mechanisms permitting strong and immediate visible results, but also long term improvement of age lines :

1. Very fast penetration within the skin and short half-life with different molecular weights
2. Instant skin volume increase (15-25%) based on 3D volume structure of PFCs and their omniphobic properties. This phenomena is comparable to ice versus water : ice is structured, volumised water.
3. BOTOX®-type strong muscular relaxation (di-electric effect)
4. Cell cleaning of Carbon Dioxide refreshing the cellular metabolism.

We have based this study on these mechanisms.

Purpose of the study

The goal of this study is to show the efficiency of **FIFLOW® BTX** on redness and brightening:

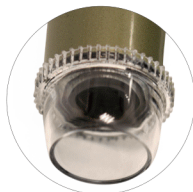
One formula containing **FIFLOW® BTX** has been studied :

BTX cream (PFI 1610 CS) containing 10% of **FIFLOW® BTX**.

Equipment

• Videoscope

This probe is an electronic video microscope with 20-50X magnification. It provides high quality close-up images of the surface of the skin using a polarized or non polarized white light as light source.



• Skin Color

This probe measures different color systems including CIE L*a*b* and erythema/melanin index to provide information about the pigmentation level.



• Ultrasound

It is based on measuring the acoustic response from the skin acoustic pulse is sent into the skin.



Protocols

A location on the forearm of the subject is observed with the Videoscope before application of the product. Measures of the redness are done with the skin color probe.

Some BTX cream is spread on the same location than before (inside a 3cm-diameter circle).

Pictures and measures are done right after the application of the product and after 10 minutes.

Results

Brightening effect : BTX Cream with 10% of **FIFLOW® BTX**.



Before application

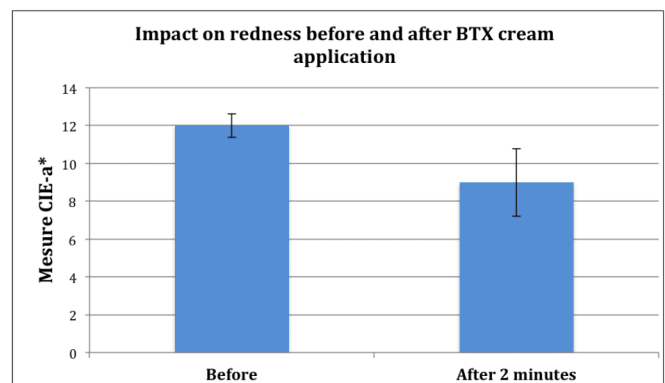


After application, T =2 minutes

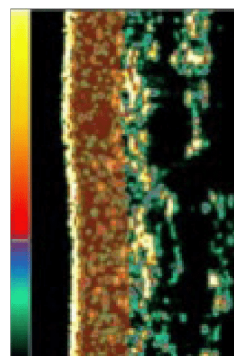


After application, T =10 minutes

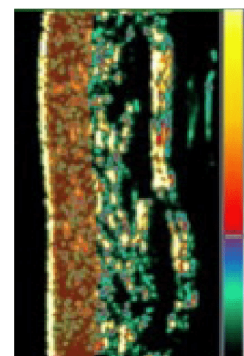
Redness : BTX Cream with 10% of **FIFLOW® BTX**



Skin thickness : BTX Cream with 10% of **FIFLOW® BTX**



Before application



After 7 days

BTX Cream containing 10% of Fiflow® BTX reduces significantly skin redness (-25%) and increases skin brightness right after the application.

After 7 days, skin thickness has increased by 10-15%.

Conclusion

Redness : The skin becomes more fragile due to Carbon Dioxide accumulation. Not only does CO₂ dehydrate skin but its vasodilator effect also makes redness more visible on the skin surface.

FIFLOW® BTX carries Oxygen into the dermis and captures away Carbon Dioxide. Due to its omniphobic properties, the inclusion of **FIFLOW® BTX** in the intercellular cement of the skin creates an immediate volume by 3D hexagonal micelle structure. Based on skin surface studies, **FIFLOW® BTX** immediately increases the volume of skin by 15-25% reducing the appearance of blood vessels.

Brightening :

Skin's uptake of Oxygen starts to decline at age 20 and is reduced by 50% by the age of 50.

Oxygen depletion and Carbon Dioxide accumulation lead to poor cell respiration which causes dehydration, uneven skin tone and dull skin. It is probably the largest contributor to the premature aging of the skin, as Carbon Dioxide hinders or stops bio-pathways for cell metabolism.

FIFLOW® BTX can solubilise Oxygen and Carbon Dioxide, mimicking the function of hemoglobin. **FIFLOW® BTX** carries Oxygen into the dermis, where it will diffuse from a region of higher partial O₂ pressure. As Carbon Dioxide is more soluble in **FIFLOW® BTX** than Oxygen, it will immediately replace Oxygen in **FIFLOW® BTX** and will be carried out by it. This will allow cells to breathe normally and refresh their biological functions, leading to much better skin appearance.