U-Skin™

a cutting-edge technology that substantiates your cosmetic product's claims

LONG-LASTING

MATTIFYING

SEBO-RESISTANT

SWEAT-RESISTANT

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

U-Skin™

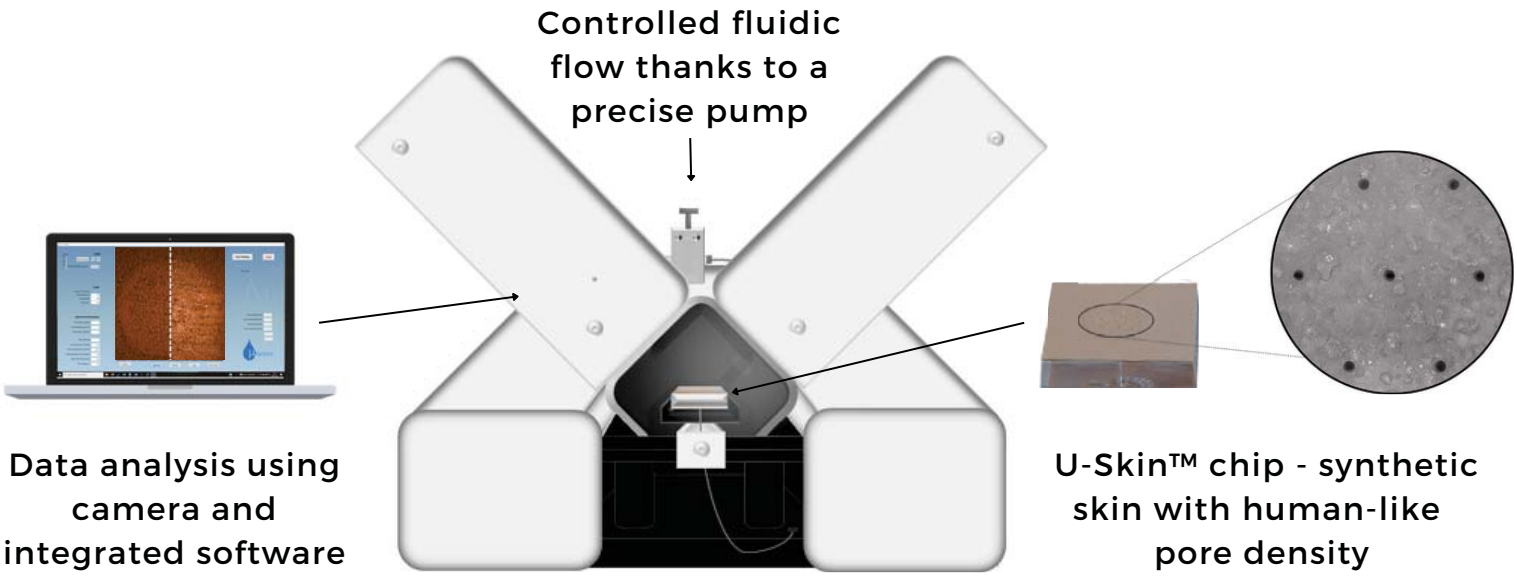
WHY?

- **Revolutionizes cosmetic products' screening thanks to microfluidics**
- **Reduces the time-to-market of cosmetics products worldwide**
- **Helps foster a lower carbon future**

HOW?

- **Uses scientific innovation to evaluate your products' performance**
- **Provides objective results within two hours**
- **Uses less materials and energy than other screening techniques**

WHAT?



Data analysis using camera and integrated software

U-Skin™ instrument analyzes your product's performance

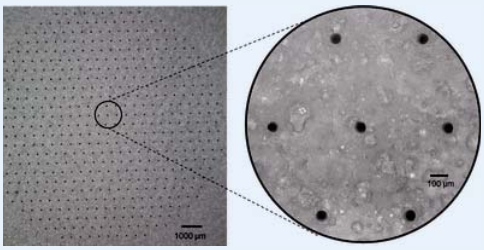
U-Skin™ chip - synthetic skin with human-like pore density

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

U-Skin™ : a technology correlated to *in vivo*

THE TECHNOLOGY U-SKIN™:

First in vitro test, assessing in 2h, your product's lasting performance while proving its in vivo correlation. This cutting-edge innovation, based on microfluidics, combines an optical instrument with a synthetic polymeric skin that mimics human sweat and sebum excretion.



U-Skin™' general excretion zone

Zoom on U-Skin™' pores

CORRELATION STUDY - 3 LIQUID FOUNDATIONS

Over the many tests that were conducted, Microfactory proved the *in vivo* / *in vitro* correlation of U-Skin™ with the CIDP, with regard to color variation for three foundations:

Image of a volunteer

For each product

- 12 women selected
- **Clinical scoring** by makeup professionals
- Front view images using the VISIA-CR®
- **Image analysis** by NEWTONE
- 4 timepoints (T0, Timmediate, T12h, T24h)

For each product

- 3 tests = triplicate for accuracy
- Colored and polarized images using **U-Skin™ imaging system**
- Continuous analysis

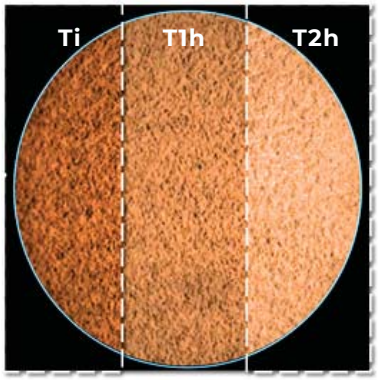
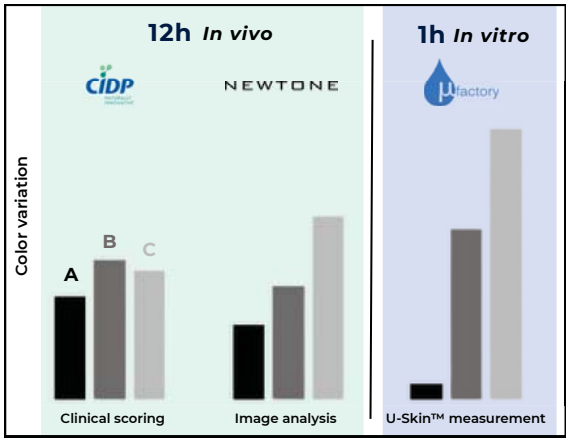
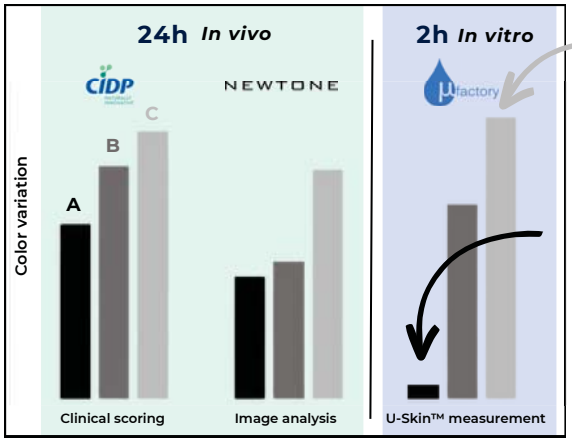


Image of U-Skin™





Maximum color variation = least efficient product

Minimum color variation = most efficient product

Foundation A
Foundation B
Foundation C

STRONG CORRELATION: U-Skin™ predicts *in vivo* results and marketing claims in only 2h thanks to steeper product discrimination

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

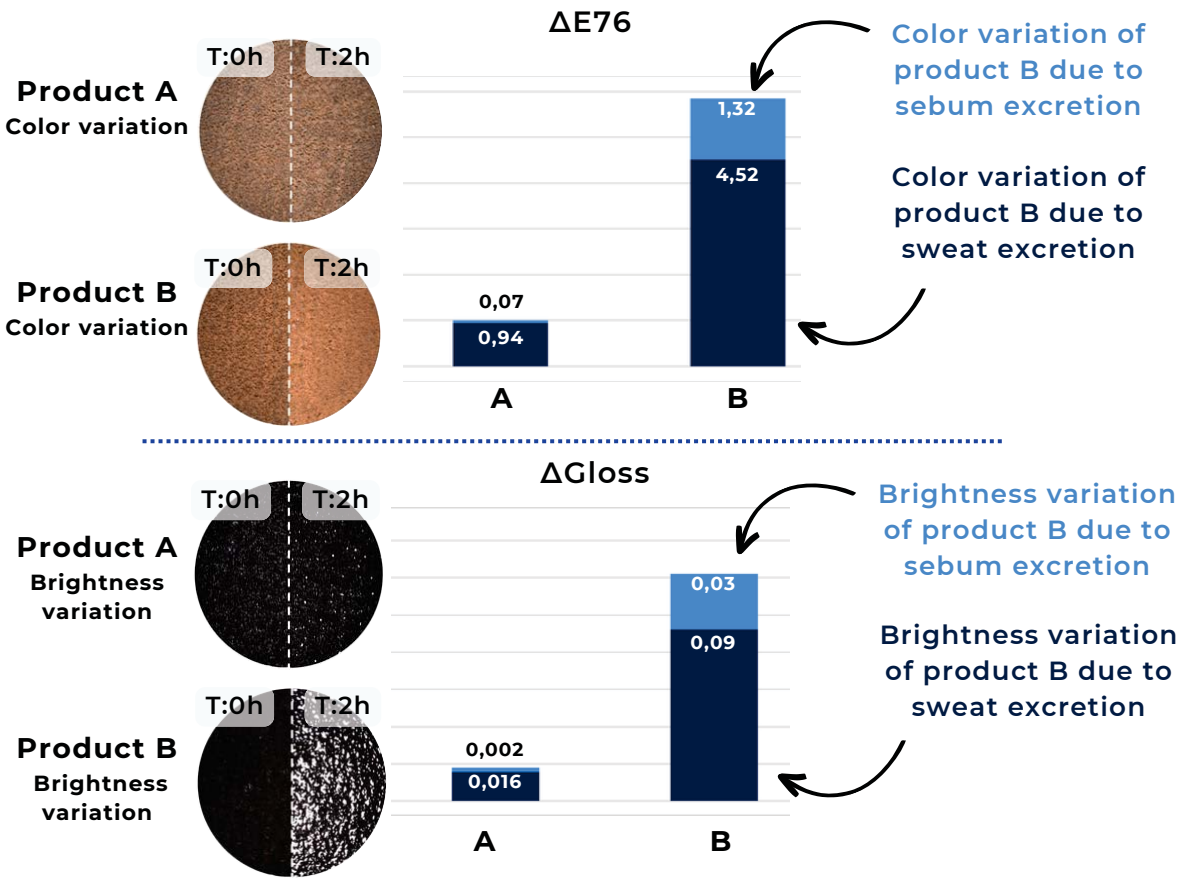
U-Skin™ : performance assessment of different products

THE TECHNOLOGY U-SKIN™

First in vitro test, assessing in 2h, your cosmetic product's lasting performance among a chosen panel of similar products. This cutting-edge innovation, based on microfluidics, combines an optical instrument with a synthetic polymeric skin that mimics human sweat and sebum excretion.

CASE STUDY - LIQUID FOUNDATION

Screening test of liquid foundation to predict which product is the most resistant to sweat and sebum continuous excretion:



Conclusion: Between these two products, the formulation A is the most performant one.

Thanks to the graphical analyses and images, U-Skin™ discriminates two or more foundations regarding their long-lasting performance and mattifying effect.

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

U-Skin™ : performance assessment of different galenic

THE TECHNOLOGY U-SKIN™

First in vitro test, assessing in 2h, your cosmetic product's lasting performance with specific methods for each galenic. This cutting-edge innovation, based on microfluidics, combines an optical instrument with a synthetic polymeric skin that mimics human sweat and sebum excretion.

CASE STUDY - POWDER FOUNDATION & EYESHADOW

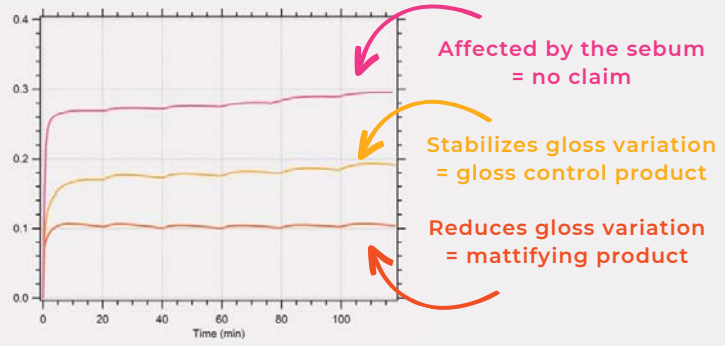
Screening test of makeup products resistance to pulsed sebum and sweat excretion:

SEBUM RESISTANCE

Powder foundation A
Powder foundation B
Powder foundation C

Color variation: ΔE76

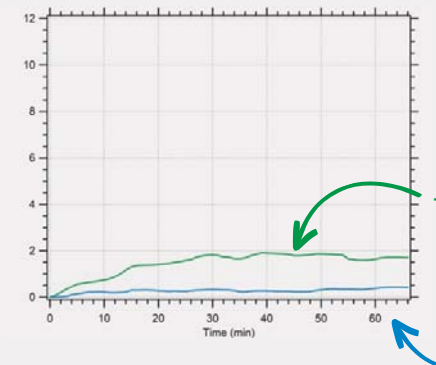
Brightness variation: ΔGloss



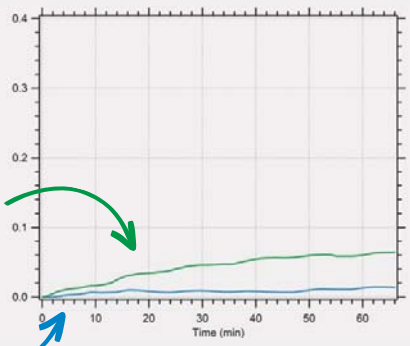
SWEAT RESISTANCE

Color variation: ΔE76

Creamy eyeshadow A
Creamy eyeshadow B



Brightness variation: ΔGloss



The color & the brightness of the product are impacted by the sweat excretion

Low color variation & low gloss variation = very resistant product

U-Skin™ evaluates the sebo-resistance and sweat-resistance of makeup products to discriminate them regarding their long-lasting and mattifying effects.

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

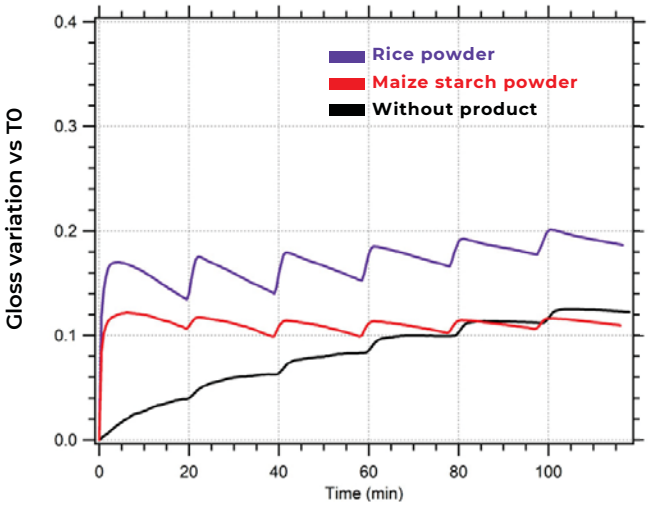
U-Skin™ : performance assessment of ingredients

THE TECHNOLOGY U-SKIN™

First in vitro test, rapidly assessing your ingredient's lasting performance with a specifically designed protocol. This cutting-edge innovation, based on microfluidics, combines an optical instrument with a synthetic polymeric skin that mimics human sweat and sebum excretion.

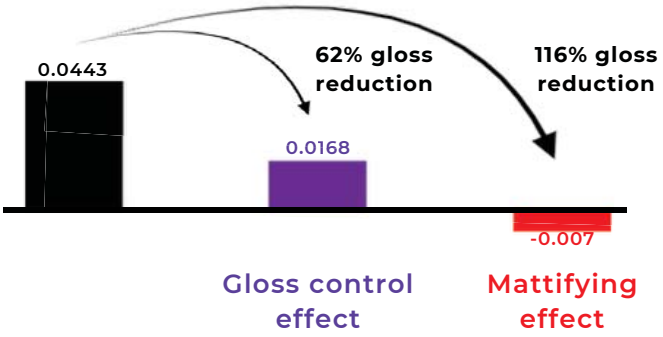
CASE STUDY - INGREDIENT

Evaluation of ingredients resistance to pulsed sebum excretion according to the brightness parameter:



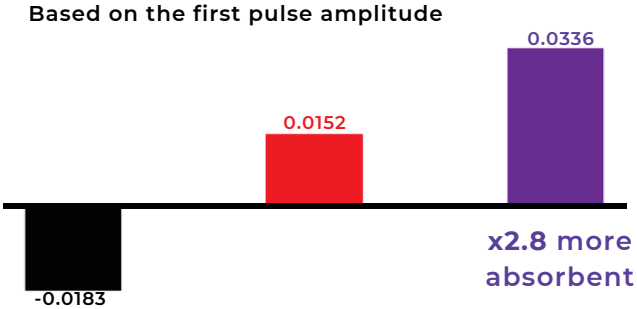
Long-term mattifying effect:

Gloss evolution after 1h of sebum excretion



Absorbing capacity:

Based on the first pulse amplitude



Conclusion:

The mattifying effect of ingredients cannot be determined solely on the basis of a study of absorption capacity.
Of these two ingredients, rice powder has the best sebum absorption capacity. However, over the long term, maize starch demonstrates a very good mattifying effect.

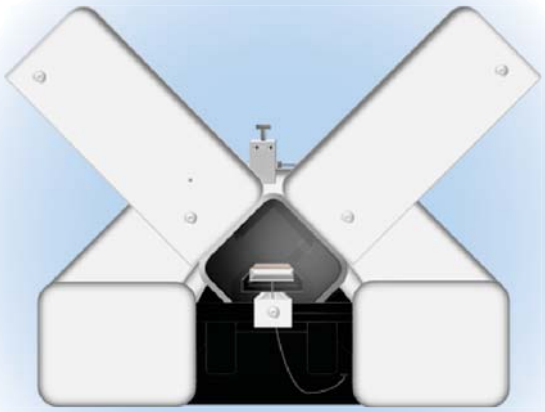
In this case study, U-Skin™ has been used to dissociate the mattifying effect from the absorption capacity and to identify which one of these two ingredients has the best mattifying properties.

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

To go further... U-Skin™ technical datasheet

U-Skin™ is divided into 4 parts:

1. Polymeric synthetic skin
2. Fluidic control
3. Data acquisition
4. Quantitative & qualitative analysis



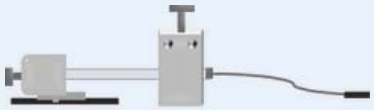
U-Skin™ instrument analyzes your product's performance

1

U-Skin™ polymeric synthetic skin

- Polymeric microfluidic chip mimicking human skin's physical properties: roughness, pore size, and pore density
- Mimics Human sweat and sebum excretion
- The fluid of interest is injected from below, flows through the pores uniformly, and comes into contact with the studied product (deposited on top).

2



Fluidic control

- Allows for the injection of the fluid of interest (sweat or sebum) at a controlled flow rate for a determined time period.

4

Quantitative & qualitative analysis

- Measurement of delta E76 (l*, a*, b*)
- Measurement of gloss index (inversely proportional to mattness)
- Measurement of the gloss variation over time.

3

Data acquisition

- Continuous visual monitoring
- Support for image analysis
- Two types of images: Color and polarized.

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu

MICROFACTORY

is going to revolutionize the way cosmetics products are screened through microfluidics. We want to help foster a lower carbon future and reduce the time-to-market of cosmetics products all over the world.

THE TECHNOLOGIES:

U-Skin™

The first in vitro test capable of testing, in 2h, your cosmetic product's lasting performance. An innovation mimicking the human sweat and sebum excretion.

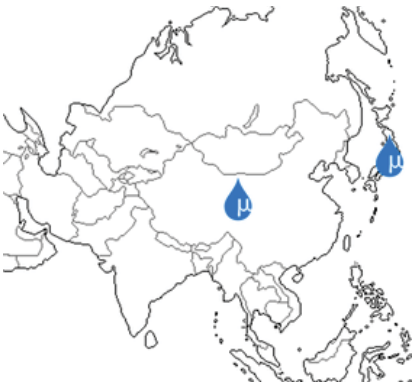
Smart-Pore™

The first in vitro technology capable of testing, in 2h, your antiperspirants' efficiency. An innovation mimicking the human sweating mechanism.

COMPANIES WHO TRUST US:

North America

Europe



Asia

Our activity is mostly based in Europe and concentrated in France. However, it is expanded worldwide since many companies start to have the same vision as us.

www.microfactory.eu
Microfactory SAS
11, Rue Vauquelin 75005 Paris
+33 6 62 72 04 61
fabrice.monti@microfactory.eu