HelioScreen

HelioNews

News about In Vitro Sun Protection Testing

HN 2016 N°23

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Congress & Events

Sun Protection & Anti-Ageing Skin care
13-14th July 2016, Singapore

Conference by D. LUTZ about «In vitro SPF for label claim: fact or fiction?»

in-cosmetics Korea
6-7th July 2016, Seoul
Visit us

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Editorial

The open days in our company has allowed any customer to visit our facilities, see our very specific and innovative appliances and to learn how we perform the tests for our customers compared to other testing laboratories who cannot do due to the specific equipment.

We had nothing to hide because not only we are at the top of the innovation and knowledge on the in vitro testing, but also because we apply day after day. This is not only words and marketing claims to pretend being "the best or the expert…" or any further statement to convince customers who cannot always realize how it seems simple to test but how it is complicated. Moreover, it is not just a show because we again demonstrated in live the ability of robotic application to ensure the results.

The time when all customers will require their testing lab to get such equipment for their testing has not yet come for every one as price and just final results in accordance with the expected result are still the most important for most of them.

But they know now we can do it. We have innovated, we have demonstrated (most of the time with international recognition) the effectiveness of the proposed solutions, not to mention the impossibility to go on with the further way of testing, we have published and now we showed the daily use of our equipment and skills.

We have also had the pleasure of welcoming some competitors' as visitors. It means they also know how we master the in vitro testing. In this issue we report about this day and I am very proud of the development of this company which has never change its policy; to do only in vitro testing to be really the specialist.

Dominique Lutz, CEO Scientist Manager

IN VITRO SUNCARE

OPEN DAYS 2016
JOURNEES PORTES-OUVERTES 2016

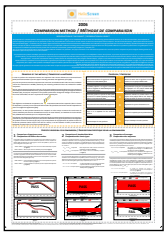
HelioScreen, as a leader in In Vitro tests for more than 15 years, was pleased to propose for the first time an Open Days dedicated to the In Vitro Suncare testing the April 15th 2016 totally free of charge.

With an agenda based on Theoretical and Practical within 1 day, our delegates discovered all fundamentals of sun protection tests to ensure reliable results and visited our company. Moreover, several equipments have been presented and In Vitro sunscreen tests have been performed. If you missed this event, discover or rediscover this spectacular day with pictures and contents presented to our delegates.

History of HelioScreen

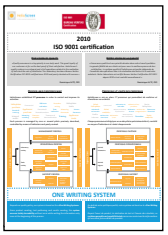
First, herein below are the different posters which were presented during this Open Days about the HelioScreen's history. Just click on the picture to open the document.

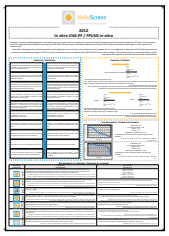

Creation

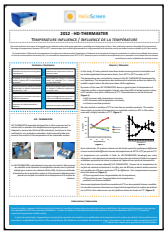

Comparison method


HelioScreen new office


Helioplate HD6


Quality system


In Vitro UVA-PF

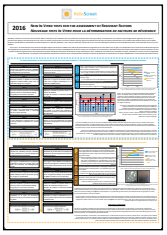

HD-THERMASTER


HD-SPREADMASTER


HelioScreen Asia Co., Ltd.


Helioplate SB6


In Vitro SPF


Rub Resistance Wet Skin







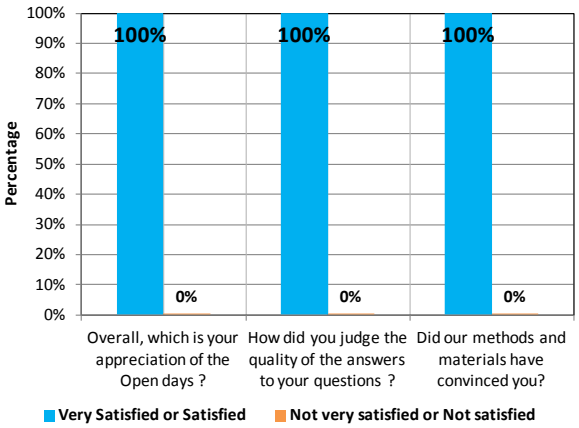



Figure 1. Satisfaction survey of our Open Days








Visit of our company

Based at Creil in the north of Paris, HelioScreen maintains its goal to have a nice place to work. Thus during this event, our delegates had the opportunity to visit some parts of our company and its 500m² dedicated to the In Vitro sunscreen testing solutions. The different delegates? Some formulators, testors, cosmetics manufacturers, regulatory persons and also competitors.

Our delegates really appreciated this day. Discover the satisfaction survey on the **Figure 1**.

Theorical session

The first step of this day has been dedicated to a Theorical session with a presentation during 3 hours relating to the different aspects of the sunscreen testing including but not limited to:

- Presentation of HelioScreen
- Sun protection principle: Biological vs Analytical
- Worldwide regulations
- Goals of In Vitro sunscreen testing
- Reproducibility and Correlation
- In Vitro SPF for claiming: Fact of Fiction?

Practical session

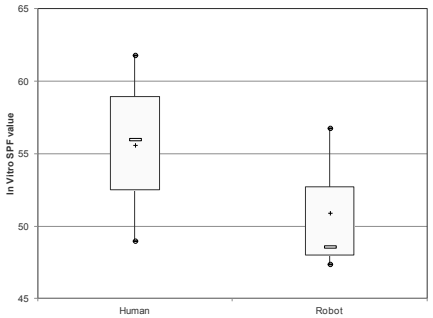
After the lunch, a part of the In Vitro sunscreen process has been presented including but not limited to the:

- selection of substrate,
- control of the temperature at substrate surface,
- application of the sunscreen product,
- spreading by manual and robotic spreading,
- UV transmission measurement.

During this practical session, the robotic spreading and manual has been again compared and again confirmed the compulsory need to use a robotic spreading for reliable sun protection values.

Manual	In Vitro SPF	SD	COV
Operator 1	61,8	3,5	5,7
Operator 2	56,0	3,6	6,4
Operator 3	49,0	0,2	0,4
ALL	In Vitro SPF	SEM	COV
Mean	55,6	14,1	25,3

Robot	In Vitro SPF	SD	COV
Operator 1	48,6	5,1	10,5
Operator 2	56,8	4,9	8,6
Operator 3	47,4	4,4	9,3
ALL	In Vitro SPF	SEM	COV
Mean	50,9	5,9	11,6



Social event

This spectacular day has been the opportunity to take part of social events such as lunch but also mainly followed with a coktail reception with a saxophonist. A very pleasant moment as demonstrated with some testimonials:

"Très bon accueil, très bonne formation."

"Accueil très agréable."

"Très bonne journée, très claire et très bon acccueil."

YOU MISSED THIS 1ST EDITION OF THE IN VITRO SUNCARE OPEN DAYS 2016?
YOU WOULD LIKE TO TAKE PART OF A POSSIBLE 2ND EDITION?

PLEASE GIVE US YOUR OPINION WITH THE FOLLOWING SURVEY (CLICK OR SCAN):

SURVEY
HTTP://GOO.GL/FORMS/O0XZAQ0LOJ

IN VITRO ASSESSMENT OF RUB RESISTANCE FACTOR OF SUN CARE PORDUCTS

INTRODUCTION

Nowadays, customers are conscious of the harmful effects caused by the solar radiations and more particularly caused by ultra-violet (UV). Indeed, an overexposure to UV leads to many damages like the apparition of sun burns, a premature skin ageing or the development of skin cancers. It explains why they desire sunscreen products claiming a good UV protection but now they also require personalized sun care products with resistance factors such as Water Resistance, Rub Resistance, Sand Resistance, Sweat Resistance or a Wet Skin application.

That is why our laboratory propose an innovative In Vitro tests allowing the assessment of the Rub Resistance factor of sun care products. The present paper is a short version of the published method[1].

PROTOCOL FOR RUB RESISTANCE TEST

STEP 1
Conduct the calibration and the validation of keys parameters of the test equipement including blanck measurement.

STEP 2
Sunscreen product is applied on untreated roughened molded PMMA plates with an automatic syringe at 1.3 mg/cm².

STEP 3
Sunscreen product is spread on molded PMMA plates by means of automated spreading. Drying step of 15 minutes in the dark.

STEP 4
Acquisition of the initial absorbance spectrum.

STEP 5
Realisation of an automated textile rubbing on surface substrates with a controled pressure, speed and time.

STEP 6
In Vitro absorbance measurements of the sunscreen product. Acquisition of a second spectrum.

STEP 7
Calculation of the % of Rub Resistance:

$$\%Rub_i = \frac{(SPFi\ after\ rubbing - 1)}{(SPFi\ before\ rubbing - 1)} \times 100$$

RESULTS

First, the influence of key paramters regarding the spreading process have been investigated including the pressure, the rubbing time and the speed (see **Figure 1**).

PRESSURE	There is a clear decrease of the %Rub Resistance when the pressure is high. Indeed, the textile is more in contact with the sunscreen and lead to a product less Rub Resistant.
TIME	There is a sligh decrease of the %Rub Resistance when the time of rubbing is longer.
SPEED	Between the two speeds the difference of the %Rub Resistance is very small and insignificant.

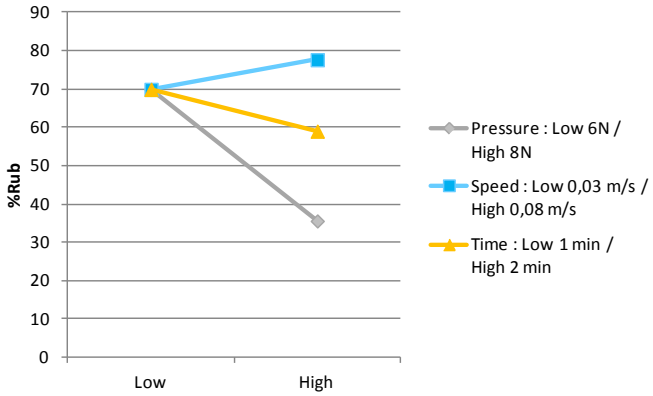


Figure 1: Mean %Rub of testing products according to the pressure, speed and time of rubbing.

Moreover, there is a great variability of the %Rub Resistance between the different textiles (see **Figure 2**). For example, with the textile A the mean of the %Rub for all sunscreens is 82.2% whereas for the textile K, the mean is 21.0%. So the textile used during the automated rubbing influenced a lot the results.

Furthermore, to obtain a good selectivity for the test, the mean of the %Rub should be between 50% and 70% and only textiles B, D, E and L give this degree of selectivity.

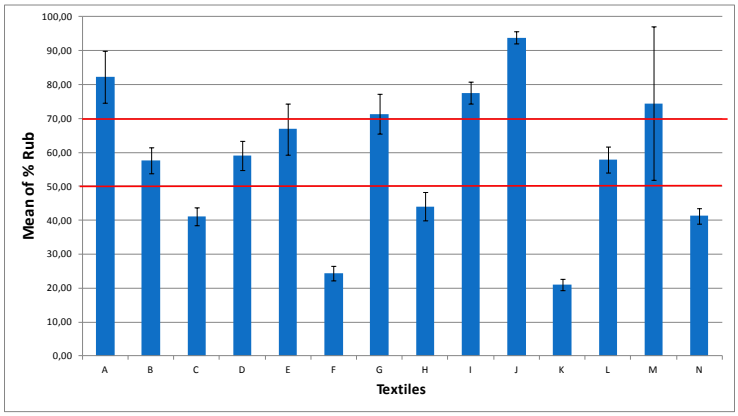
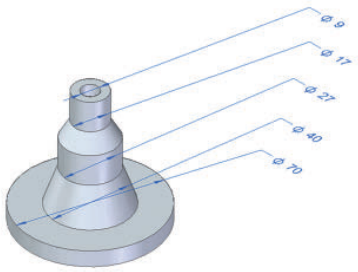
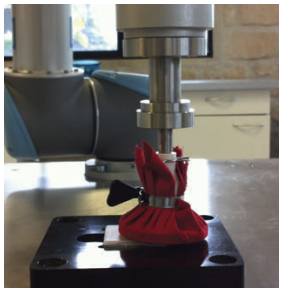


Figure 2: Graph representing the mean of the %Rub Resistance according to the different textiles





Conclusion

To assure the reliability of this new In Vitro test, the different testing conditions have been selected with a pressure at 4N, a speed at 0.03 m/s and a rubbing time at 2 minutes. The textile selected is the E which is cotton and which respects the degree of selectivity. This test is especially innovative because the devices used are automated and developed exclusively for this method.

Finally, the assessment of the Rub Resistance is an added value for the product and it is a major asset for consumers and manufacturers.

Accelerated stability method for sunscreen products performance assessment

Introduction

To ensure to the consumer that a cosmetic product fulfills the intended physical, chemical and microbiological quality standards as well as functionality and aesthetics under its usage time or shelf life, specific tests are required to control stability. However, for sunscreen products, unless being the main purpose, no further control is performed in order to assess the remaining of the UV protection performance according to storage conditions and stability times.

This is the goal of this study recently published**[2]**, to present a fast and efficient testing procedure based on a comparison method allowing analyzing stability and remaining performance concerning the UV protection.

For this purpose, a method allowing the evaluation of the overall quality of sunscreen product (based on the shape of the curves, standard deviation and sun protection average) and the relevance of its UV protection claims was presented in previous publications* whom one of its applications is dedicated to the stability assessment of UV protection performance.

Results

The comparison of results with the Reference t0 versus Samples according to storage conditions and stability times are presented in the **Table 1**.

Based on these results, the **Table 2** herein below shows the equivalence between the storage conditions and stability times versus the reference t0.

Table 1. Comparison of results of the Reference t0 vs. Sample according to storage conditions and stability times

Storage	Comparison of the reference vs. sample	Stability time in month					
		t0	t1m	t3m	t6m	t12m	t24m
T4°C - Accelerated stability	Curve	-	0.00	0.02	0.02	-	-
	Standard Deviation	-	1.00	1.00	1.40	-	-
	Average	-	0.00	0.06	0.08	-	-
Tamb - Long-term stability	Curve	-	0.01	0.01	0.01	0.01	0.03
	Standard Deviation	-	1.50	1.10	1.00	1.10	1.20
	Average	-	0.01	0.02	0.04	**0.21**	**0.33**
T45°C - Accelerated stability	Curve	-	0.01	0.01	0.02	-	-
	Standard Deviation	-	1.00	1.20	1.30	-	-
	Average	-	0.03	**0.25**	**0.44**	-	-

Table 2. Conclusion of equivalence of the Reference t0 vs. Sample according to storage conditions and stability times

Storage conditions	Stability time in month					
	t0	t1m	t3m	t6m	t12m	t24m
T4°C	-	Equivalent	Equivalent	Equivalent	-	-
Tamb	-	Equivalent	Equivalent	Equivalent	Not equivalent	Not equivalent
T45°C	-	Equivalent	Not equivalent	Not equivalent	-	-

Conclusion

While sunscreen products have to fulfill physical, chemical and microbiological quality standards, it is also very important to know the level of UVA and UVB protection during shelf life of the product. Obviously, the condition of storage and usage as well as the transport, will influence the shelf life of a product but the accelerate stability can be investigated as an interesting and useful toolbox to predict the real time stability.

Indeed, it has been demonstrated that the UV protection performance according to storage conditions and stability time can be strongly impacted with a clear decrease in terms of efficiency. Thus it seems compulsory to check these characteristics for sunscreen products which could lead to consumer safety risk. In other hand, the results also shown that accelerated stability as described in this paper can be used in a first instance as a predictive tool to reduce long-term stability for the UV protection performance monitoring.

*D. Lutz and S. Miksa. In vitro comparison - A new accessible and reliable statistical method to compare the global UV protection properties of cosmetics. HPC Today and Monographic supplement SUN CARE - Vol 8(4) July/ August 2013
D. Lutz, S. Miksa, C. Guy. Sunscreen products: some practical applications for a new comparison test method to help development and ensure quality controls. H&PC Today - Household and Personal Care Today, Vol. 9 nr. 6 November/ December 2014

Scientifics articles

[1] Supporting Claims for «Rub-Resistant» Sun Protection - E. Delamour, S. Miksa, D. Lutz and C. Guy, Cosmetics & Toiletries, April 2016

[2] Accelerated stability method for sunscreen products performance assessment - S. Miksa and D. Lutz, EuroCosmetics, March 2016

[3] Relevance of Sun Protection Factor claim – Review of a study with 60 different commercial sunscreen products from European market – S. Miksa, D. Lutz and C. Guy, H&PC Today, Vol 11(2) March/April 2016

[4] Man vs machine - S. Miksa, D. Lutz and C. Guy, SPC magazine, April 2016

[5] New approach for a reliable in vitro SPF method Part II: Practical aspects and implementations – S. Miksa, D. Lutz, C. Guy and E. Delamour, International Journal of Cosmetic Science, Accepted Article, doi: 10.1111/ics.12327

[6] Sunscreen Sun Protection Factor claim based on in vivo interlaboratory variability – S. Miksa, D. Lutz, C. Guy and E. Delamour, International Journal of Cosmetic Science, Accepted Article, doi: 10.1111/ics.12333