

Sun Care Challenges



01/2024 Sellcare AG

1. Sun Care
2. UV & Microbiome
3. Eco-Filter
4. Simulate Formulations
5. Filter Replacement
6. Vitamins in Sun Care



Sellcare
creative chemicals

At Sellcare You Will Find...

MARKETING INFORMATION

TECHNICAL DATA

**UV-FILTERS &
SUN CARE INGREDIENTS**

INSPIRATION

Sun Care

BALANCING SKIN HEALTH AND ECO-CONSCIOUSNESS

While many of us enjoy the warmth of the sun on our skin, there still seems to be insufficient awareness about sun protection among too many people. In Switzerland, skin cancer ranks fourth among the 32 recorded cancer types between the years 2016-2020 (Krebsliga, 2023). With our partner dsm-firmenich, we prioritize meeting consumer preferences in safe sun care protection in order to reach as many people as possible to use sun protection. dsm-firmenich consistently pioneers and develops innovative formulations, filters, tools, analytics and concepts to educate and meet consumer demands while ensuring safety and sustainability to the best of our knowledge. Our mutual goal is to make skin protection an enjoyable experience.

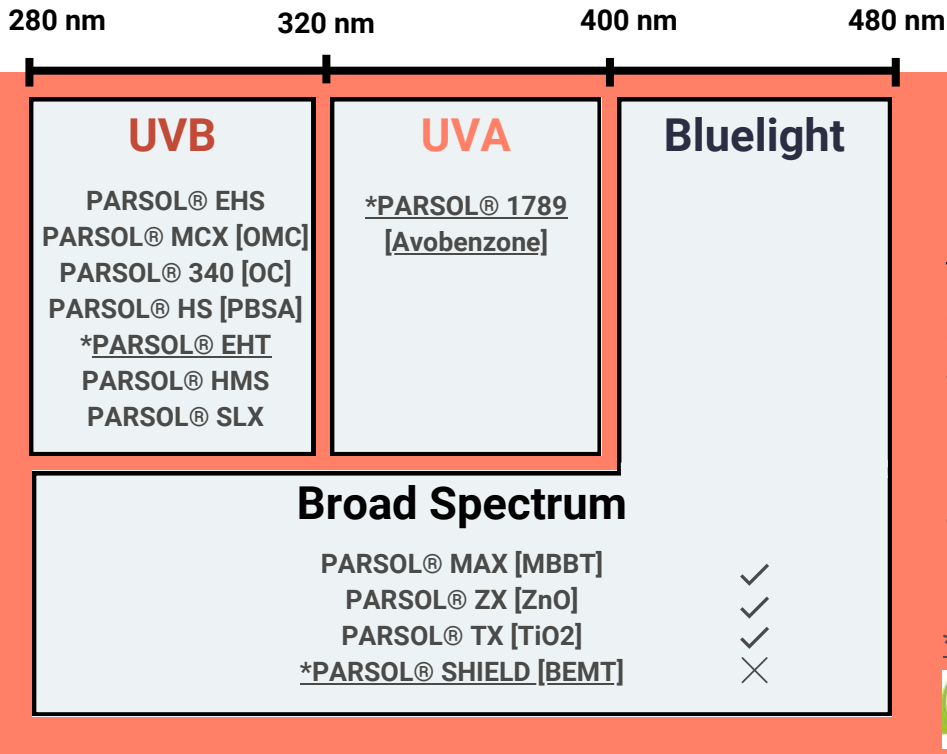
The interaction between UV filters, and the skin microbiome has been a subject of interest and research. Consumers concerned about potential effects on the microbiome may seek sunscreens specifically formulated to be microbiome-friendly. We will introduce dsm-firmenich's research on sun care and the microbiome. It's essential to strike a balance between sun protection and skin health. Seeking sunscreens not only kind to the skin but also environmentally conscious, adds another layer of mindful care that we will discuss.

DEVELOPMENT

In the pursuit of sustainable skincare solutions, dsm-firmenich's SunScreen Optimizer™ has been extended, offering a practical solution for R&D efforts in developing eco-friendly sun care. This free tool addresses the dual challenges of effective sun protection and environmental consciousness. It supports in finding solubilizers, calculating SPF, exchanging UV-filters, optimizing the eco-score and much more.

EXPERT ADVICE

Our sales team at Sellcare is eager to discuss any sun care topic with you! We can provide ideas, frame formulations, product examples and concepts. Also ask us for fitting solubilizers, preservative systems and emulsifiers.



dsm-firmenich UV-Range

The following UV filters have proven benefits for acne-prone skin and microbiome health: PARSOL® EHT, PARSOL® 1789, PARSOL®340, PARSOL® EHS, and PARSOL® ZX.

*Certified microbiome-friendly



UV-Filter & Microbiome

What is the impact of UV on the skin's Microbiome? Tested SPF20 sunscreen prevented the UV-induced reduction of *Lactobacillus crispatus* vs placebo (test of dsm-firmenich). *L. crispatus* produces lactic acid and antimicrobial compounds such as hydrogen peroxide and bacteriocins, balancing the microbe populations and prevents skin pathogens and infections (Wang et al. 2017).

The dsm-firmenich study shows that UV filters can preserve functionality of key players on the skin during UV stress, resulting in more resilient skin and its barrier function. A smart combination to protect *L. crispatus* is: PARSOL® EHT, PARSOL® 340, PARSOL® 1789 and PARSOL® ZX.

Further, the survival of beneficial *S. epidermidis* and undesired *C. acnes* have been evaluated. A smart selection of UV filters might prevent inflammatory acne breakouts triggered by imbalance in the skin microbiota associated with specific types of *C. acnes*. See next page for filter combination.

Eco-Friendly



The Eco-Score has been developed by dsm-firmenich and is mainly based on PBT approach: Persistence, Bioaccumulation, Toxicity, based on Annex XIII REACH, Guidance on information requirements and chemical safety assessment - Chapter R.11: PBT/vPvB Assessment. 2017.

Eco Filter Recommendation

Most Effective UVA-Filter:

PARSOL® 1789 [Avobenzone]

Only UVA filter approved in North America - also photostable without OC. SPF contribution.

also to prevent acne:

“(…)*especially tailored for acne prone skin*”

“*supports an even complexion*”

Highest UVB Absorbance:

PARSOL® EHT

Enables high eco-class formulations. Photostable and widely compatible. Easily dissolves in oil phase.

Best Broad Spectrum Filter:

PARSOL® SHIELD [BEMT]

Supports high water resistance. One of the most eco-friendly filters. High performance even at low levels.

Online Tool to Simulate In Silico Formulation Ideas



DSM SunScreen Optimizer™ with Eco-Profiling

Over 8000 registered users.

Individualized Inputs

- including target SPF
- selected UV filters
- use concentrations
- region

Optimize Solvents

- with the DSO 2.0 solvent calculator

A reliable, fact-based, transparent evaluation of each filter and of each formulation.

Customized Outputs

- calculated SPF & UVA
- critical wavelength
- eco impact
- eco class

Eco Profile

- directly integrated in DSO 2.0
- relative eco impact score
- market database analysis classification

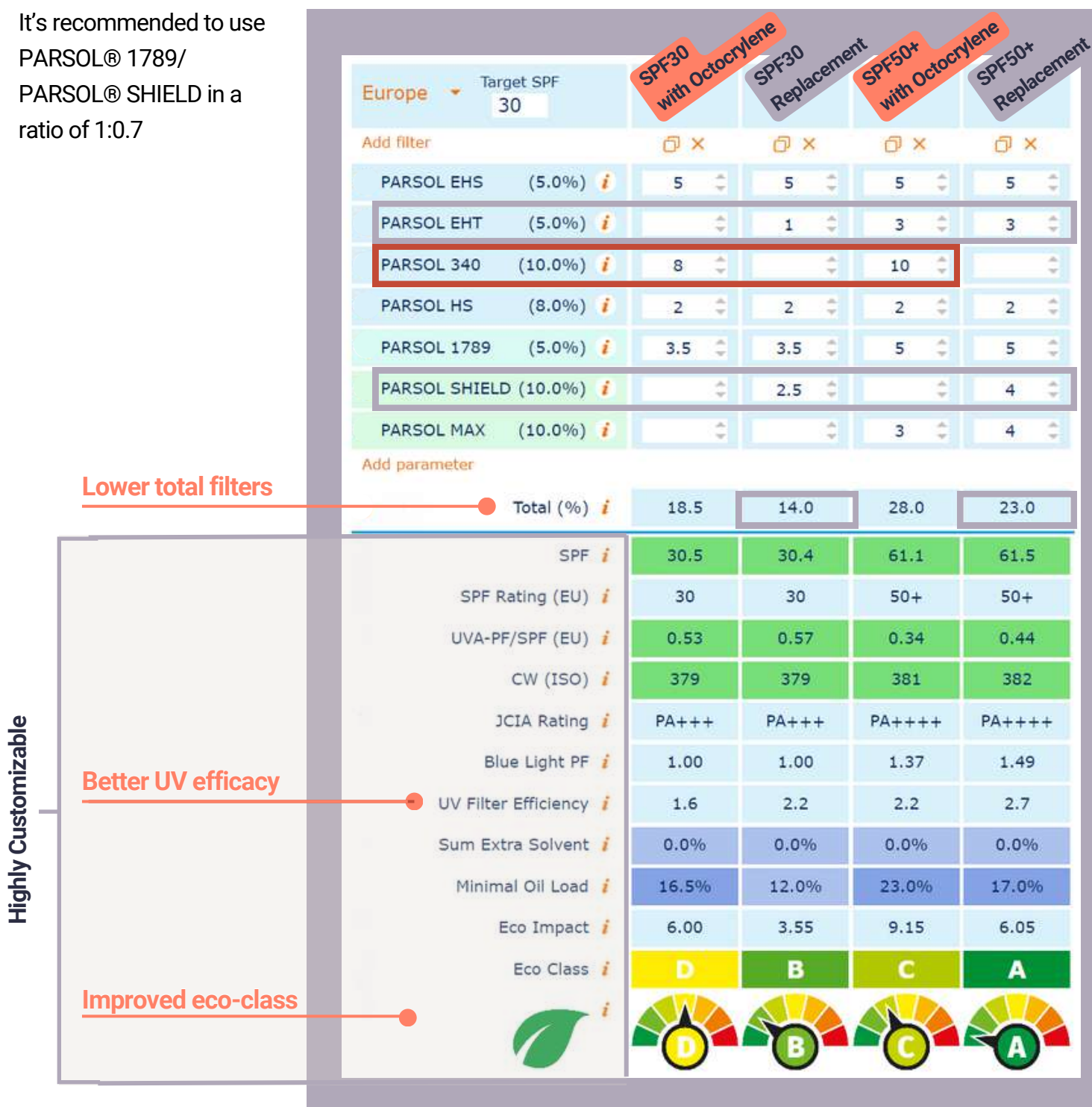
Benchmarking and classification method, that helps compare and judge the eco-profile of new formulations.

The eco-class logos are DSM Trademarks. Ask for a Trademark Licence Agreement.

You Want to Replace Octocrylene?

DSM SunScreen Optimizer™ assists you in that type of process:

It's recommended to use
PARSOL® 1789/
PARSOL® SHIELD in a
ratio of 1:0.7



Your personal Sellcare contact is happy to answer any of your questions!

Usage of Vitamins in Sunscreens

95 % of 43 analyzed international cosmetic brands use antioxidants in their sunscreens. Vitamin E is the most commonly used by far, followed by Vitamin C, also some Niacinamide has been used. Vitamin C in form of ascorbyl palmitate was used in 10% and in form of ascorbic acid in 6.3% of cases (Jesus et al., 2023).



Vit E

Reduces sunburn cells. DL-alpha-Tocopherol serves as formulation protection, while Mixed Tocopherols show strong efficacy on the skin.

available at Sellcare:

- *DL-alpha-Tocopheryl Acetate*
- *D-alpha-Tocopheryl Acetate*
- *Mixed Tocopherols 95*
- *DL-alpha-Tocopherol*

Vit C

The stable derivative of Vit C, STAY-C® 50 can be widely used, e.g. in photoprotection reducing photodamage, anti-ageing to improve firmness, skin tone, acne care and oral care. The derivative penetrates the skin (88.9%) and is converted into ascorbic acid within 2 min (95%).

available at Sellcare:

- *STAY-C® 50 (Sodium Ascorbyl Phosphate)*
- *Ascorbic Acid (fine/ultrafine powder, fine granular)*
- *Ascorbyl Palmitate*



Vit B3

Found in 1-4% of sunscreens, this versatile vitamin serves multiple purposes such as enhancing skin tone, combating aging, protecting against pollution, maintaining skin barrier, providing moisture, and caring for acne-prone skin.

available at Sellcare:

- *Niacinamide PC*



What's Sellcare's take on sun care?

We know it is difficult to fulfill all stakeholder's needs while being as environmentally friendly as possible. We think dsm-firmenich's Sunscreen Optimizer™ is a great tool to develop future-proof sunscreen formulations. We are happy to give further advice depending on your specific needs.

Do not hesitate to discuss with our team:

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Literature

Krebsliga Schweiz. 12.2023. "*Krebs in der Schweiz: wichtige Zahlen.*" Zahlen und Fakten. Retrieved on January 5th 2024, on <https://www.krebsliga.ch/ueber-krebs/zahlen-fakten>

Jesus, Ana, Sandra Mota, Ana Torres, Maria T. Cruz, Emília Sousa, Isabel F. Almeida, and Honorina Cidade. 2023. "Antioxidants in Sunscreens: Which and What For?" *Antioxidants* 12, no. 1: 138. <https://doi.org/10.3390/antiox12010138>

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