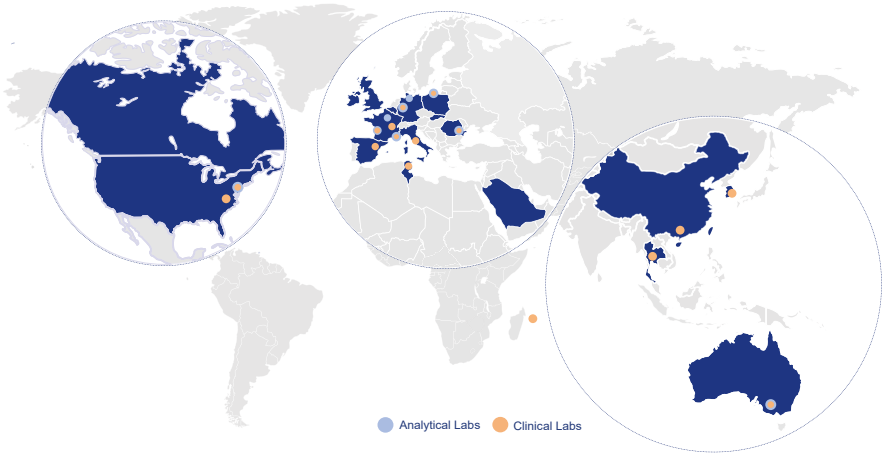

eurofins
Cosmetics &
Personal Care
SUN
PROTECTION
TESTING
A complete offer of testing
services for all types of
sunscreen products

Eurofins Cosmetics & Personal Care network of companies provides a broad range of testing services for all types of sunscreen products with 19 testing laboratories worldwide including Europe, Australia, the USA and China (CMA certified and NMPA approuved).



With a team of experts actively involved in standardization committees, (e.g.: The ALT-SPF consortium, ISO members…), Eurofins laboratories are committed to staying abreast of the current and future regulatory Solar testing environment.

We provide testing and consultancy support to ensure consumers have access to safe, compliant and effective sunscreen and related skincare products; and to measure the environmental impact of suncare formulations.

INTERNATIONAL COMPLIANCES:

- ISO 24444:2019
- ISO 24442:2022
- ISO 24443:2021
- ISO 16217:2020
- ISO 18861:2020
- FDA
- AS/NZS 2604: 2021
- Boots Star Rating
- COLIPA 2005
- ISO / OCDE
- ISO 23698
- ISO 23675

MEASURING ENVIRONMENTAL IMPACT

ECOTOXICITY

On fresh water organisms

Daphnia – Acute toxicity – NF EN ISO 6341 / OCDE 202
Immobilization test of daphnia after 24 hours

Algae – Chronic toxicity – NF EN ISO 8692 / OCDE 201
Algal growth inhibition test

On sea water organisms

Corals – Acute toxicity – internal method
Study of the retraction of polyps and whitening of cuttings

Algae – Acute toxicity – NF EN ISO 10253
Growth inhibition tests of sea water algae

Microtox – Acute toxicity – NF EN ISO 11348-3
Luminescence inhibition test of Vibrio Fisheri bacteria

Oysters – Semi chronic toxicity – NF ISO 17244
Study of the embryonic development of oysters

Crustaceans – Acute toxicity – adapted from FD ISO 14669
Determination of acute toxicity to Marine Copepods

BIODEGRADABILITY

Ready biodegradability

OCDE 301 A
Test of disappearance of dissolved organic carbon, for soluble substance

OCDE 301 B
Carbon dioxide release test, for poorly soluble and adsorbable substance

OCDE 301 F
Oxygen consumption test, for poorly soluble and adsorbable substance

Intrinsic biodegradability OCDE 302 B

Zahn-Wellens test, for soluble and not easily biodegradable substance

PHYSICO-CHEMICAL ANALYSES

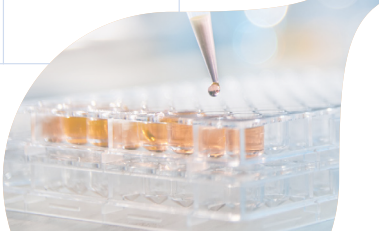
UV filters allowed in cosmetic products are listed in Annex VI of the Regulation (EC) No 1223/2009.

Eurofins laboratories, ISO 17025 certified, perform a full range of analyses to check the compliance and safety of your products, including:

- Titanium Dioxide (TiO2) and Zinc Oxide (ZnO), by ICP-MS or F-AAS
- Quantification of 22 UV filters by HPLC/UV (NF EN 17156)
- Specific test protocol determining benzophenone by LS MS-MS
- Quantification of Benzophenone and Benzene in sunscreens
- Efficacy of UV filters
- Stability testing
- Heavy metals
- Allergens
- And more …

IN VITRO SUNCARE STUDIES

TEST	GENERAL INFORMATION	NORM	SYSTEM
Determination of sunscreen UVA photoprotection factor (UVAPF) *in vitro*	Assessment of UV-transmittance through a thin film of sunscreen sample spread on a PMMA plate, before and after UV exposure source.	ISO 24443:2021 COLIPA	PMMA plates
Determination of Critical Wavelength			
Determination of the *in vitro* SPF screening	Determination of the *in vitro* SPF according to the calculation method described by Diffey and Robinson (1989) and using data from the CIE table.	Only used for screening or comparative purposed, particularly R&D	
Photostability & thermostability evaluation	Determination of the level of protection of a sun protection product while UV exposed, by spectrophotometric method.		PMMA plates
In vitro determination of IR Blocking Potential	Determination of the direct physical IR-A protection. The test product on the PMMA plate is located in the optical path and the irradiance of IR-A behind the sample is measured by the detector.		PMMA plates
In vitro determination of HEV Blocking Potential	An *in-vitro* protocol that projects: HEV blocking potential, Hazardous blue-violet 415-455 nm blocking potential, Critical Wavelength HEV photostability ratio.		PMMA plates
UPF *in vitro* Testing	Determination of the UPF of fabric samples. The UPF will be determined using a spectroradiometer and a xenon arc solar simulator.	AATCC Test Method 183-2014	Fabric samples



NEW
IN SPF ASSESSMENT METHODS

NEW METHODS

ISO 23675 (*IN VITRO* SPF - DOUBLE PLATE)

- Leverages UVR transmittance spectroscopy to predict *in vivo* SPF values;
- Applicable to sunscreens in emulsion or alcoholic one-phase formulations, excluding loose/compressed powders or stick forms.

ISO 23698 (HDRS - Hybrid Diffuse Reflectance Spectroscopy)

- Non-invasive technique evaluates SPF, UVA protection factor, and critical wavelength in situ on human skin without causing erythema;
- Valid for both single-phase and emulsion products.

IN VIVO STUDIES: PROTECTION AGAINST SOLAR EXPOSURE

UVB & UVA PROTECTION

- **Static Sun Protection Factor** as water / very-water-resistance according to ISO 24444:2019, FDA 2011, AS/NZS 2604:2021.
- **UVA Protection Factor** according to ISO 24442:2022, JCIA 1999.

INFRARED PROTECTION

Deleterious impact of infrared radiations is now clearly demonstrated: they are involved in skin aging and probably in carcinogenesis. They are mainly responsible for the increase of skin temperature and lead to the production of free radicals.

We evaluate the preventive and/or curative protection of your product against infrared radiations by

- **Biometric approach**:

cutaneous measures of color, temperature, microcirculation.

- **Biochemical approach**:

lipid oxidation assays (SQOOH, MDA), enzymes (CAT, SOD).

IN VIVO STUDIES: PROTECTION AGAINST SOLAR EXPOSURE

BLUE LIGHT PROTECTION

The spectrum of blue light, especially around 415 nm, could lead to erythema, free radical production and long-lasting hyperpigmentation. We offer different approaches to evaluate the anti-blue light protective effect:

- **Blue Light exposition with specific simulator** (single or repeated) followed by evaluation of β-carotene oxidation, protein carbonylation, lipid oxidation or pigmentation.
- **Test in real conditions**, on subjects regularly exposed to the screens of electronic devices: effect on the radiance of the complexion and the cutaneous fatigue.

SPECIFIC PROTOCOLS

- Extra-water-resistance, resistance to sand, to friction of the towel, to salt water or chlorinated water and to perspiration **on skin and/or hair**.
- Remanence of the sunscreen product as their efficacy after application on wet-skin.
- Soothing / freshness effects on exposed area as tan preparation / accelerator / extension product efficacy.

AUDIT & CONSULTING

Eurofins network of companies aims to help customers identify and mitigate risks in their operations, supply chains, systems or processes.

By eliminating potential risks at early stages, customers can prevent possible quality and safety failures, thereby avoiding brand damage, product recalls, and other undesirable scenarios.

Eurofins supports you in the different stages to sell your OTC Cosmetic Products on the North American market:

- Health Canada Audits
- Audit of the supply chain according to FDA and Health Canada requirements
- Gap analysis and preparation for an FDA inspection
- FDA inspection training

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Global Expertise, Personal Touch