

POSITION PAPER ON SUNSCREENS



CONTEXT

As part of its Healthy Waters^[1] campaign to improve water quality for all Europeans and to combat water pollution, Surfrider Foundation Europe has been looking^[2] into the impacts of sunscreen products.

The impact of sunscreens on aquatic environments and human health has been a matter of growing concern for some years now, particularly among the scientific community and blue communities. Sunscreens contribute to numerous pollution sources – chemical, bacteriological, through waste, through excess nutrients and through sediments – and to major stresses that have an impact on biodiversity and water quality and further endanger vulnerable and fragile natural resources, such as aquatic spaces and the ocean. These impacts are now exacerbated by the effects of climate change, which make water resources more vulnerable, as well as by our behaviour as blue communities since we are increasingly present on the coasts and at sea enjoying the ocean.

Numerous scientific studies have demonstrated a link between both chemical and mineral UV filters and damage to fauna and flora^{[3],[4]} coupled with risks to human health. From an environmental point of view, impacts have been observed on many species, including ecosystem engineer species, such as certain corals.^[3] Impacts can be observed in all regions of the world and in all aquatic environments. The presence of sunscreen at significant concentrations in the marine environment seems to be the cause of bioaccumulation¹ in certain species and has the potential to alter their normal development, notably by impacting their behaviour or their reproductive systems. For example, deformation of coral larvae, their immobility and the acceleration of bleaching have been observed on corals^{[3],[4]}.

¹ Bioaccumulation is defined as the accumulation of pollutants in the tissues of a living organism as a result of direct absorption from the natural environment or through the food chain.



From a health point of view, several studies have demonstrated the impact of certain chemical or mineral filters, which researchers have found to be endocrine disruptors,[5] the cause of allergic reactions and of being carcinogenic,[6] or even mutagenic,[7] particularly when they are in the form of nanoparticles or because of their capacity to penetrate the skin. In this context, the use of nanoparticles in mineral UV filters has raised questions from part of the scientific community, leading to new on-going studies on the subject.

The issue of sunscreens and their impacts is not new; the association had to take part in the relevant debates, challenging manufacturers to produce non-impacting formulations, calling on decision-makers to change the legislation on chemical and cosmetic products, as well as on marketing communication, while raising awareness among its community on how to play its part.

Through this paper and in accordance with its strategic plan, Surfrider Europe intends to reach out to:

- **Decision makers**, who have a central responsibility in adopting binding measures applicable to all, in the light of scientific knowledge and in compliance with the precautionary principle, aimed at guaranteeing human health and environmental protection. They can decide to ban substances proven to be harmful, as well as impose tests before the marketing of sunscreens or regulate the environmental and health claims made about sunscreens.
- **Businesses**, which put products on the market and are called upon to innovate in order to offer consumers sun protection products that are effective, but also preserve the environment and the health of users.
- **Citizens**, who have the capacity to make informed purchasing decisions and have the power to send strong signals to the industry and decision-makers through their consumption. They are entitled to demand transparency on the impact of sunscreens and to be offered products that preserve the environment and their health better.

WHAT ARE WE CALLING FOR

The health and environmental challenges we face require us to be careful about the products we use. Because Surfrider Europe has always taken into consideration both the preservation of the environment and the protection of the health of the ocean and its users in its efforts, the NGO defends the “One Health” approach: one environment, one health.

Surfrider Europe is aware that the use of sunscreens is a major public health issue and is therefore not opposed to the use of sunscreens or to chemical or mineral filters. It does, however, wish to make strong recommendations to stakeholders.

Although it is difficult to design products that have no impact, it is essential to apply the precautionary principle, to pursue scientific research on the environmental and health impacts of sunscreens and to eliminate UV filters that have been shown to be harmful to the environment and health.

The following recommendations were agreed in September 2022. They will be re-evaluated on the basis available scientific knowledge, regulatory decisions and the evolution of future formulations. Surfrider Europe will continue to exchange with the scientific community on the subject. These recommendations constitute a range of options to be considered by each group of stakeholders. Decision-makers and manufacturers must ensure that the sunscreen product offerings remain accessible to everyone, both in terms of the information provided and from a financial point of view.

RECOMMENDATIONS TO POLICY-MAKERS

In line with the European Green Deal,[8] which sets the highly ambitious target of a toxic-free environment leading to zero pollution, the EU Chemicals Sustainability Strategy,[9] as well as in the framework of the revision of the Cosmetics Regulation,[10] the Chemicals[11] and the Water legislation,[12] and the European Commission's initiative on empowering consumers in the green transition,[13] we recommend the following:

- Ban sunscreens containing the controversial substances benzophenone-3, octocrylene, homosalate and octinoxate from sale and use.
- Strictly regulate the use of nanoparticles in sunscreen products.
- Restrict the use of certain sunscreens in areas of high ecosystemic value or vulnerable areas.
- Ban “forever” chemicals² from sunscreen formulations.
- Include certain filters as priority substances in the EU-wide watch list³ of substances subject to monitoring under European water policy.
- Review the list of UV filters, particularly organic filters, accepted as such by the European authorities so that it contains molecules that preserve the environment and human health better.
- Prohibit the dissemination of false or misleading environmental and health claims and strictly control the use of labels on sunscreens products.
- Commission a broad European study on the environmental and health impacts of sunscreens, including when their filters are in nanoparticulate form, and on the classification of sunscreens as cosmetic products
- Fund research on the impacts of sunscreen products, taking into account cocktail effects and bioaccumulation issues in our bodies and in the environment.
- Facilitate the transparency and readability of the ingredient list of sunscreens for consumers.
- Provide financial support for research and development projects on sun protection solutions without controversial and toxic ingredients.
- Implement awareness-raising campaigns on the environmental impacts of sunscreen products, in addition to awareness campaigns on the risks of sun exposure.



² “Eternal chemicals” or PFAS are a group of more than 4,700 man-made chemicals, the two best-known of which are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). PFAS are used in a wide variety of consumer products and industrial applications, including cosmetic products, because of their unique chemical and physical properties, including oil and water repellence, temperature and chemical resistance and surfactant properties. PFAS either are, or degrade to, persistent chemicals that accumulate in humans, animals and the environment. Source: European Environment Agency, Emerging chemical risks in Europe – ‘PFAS’, 2019 : <https://www.eea.europa.eu/publications/emerging-chemical-risks-in-europe>.

³ Lists of pollutants affecting surface water and groundwater and the corresponding regulatory standards in the Environmental Quality Standards, Groundwater and Water Framework Directives.



RECOMMENDATIONS TO BUSINESSES

In parallel and in anticipation of regulatory changes:

- As soon as possible and by 2025 at the latest, put on the market sunscreen products without controversial chemical filters.
- Remove chemical ingredients that have not been proven to be safe for health and the environment, in particular corals, from their formulations.
- Reassess the inclusion of filters in nanoparticulate form in their formulations, in the light of scientific research and in application of the precautionary principle.
- Systematically test sunscreen products for ecotoxicity and biodegradability under natural conditions and make the test results accessible and public.
- Stop the use of non-independently monitored labels, and of vague, simplistic, unclear, unsubstantiated and unmonitored environmental and health claims on sunscreen products and any communication that may mislead the consumer into believing that a product has no impact on the ocean or the environment.
- Work on a “shared patent” project on a sunscreen without controversial and toxic chemical ingredients and continue research and development on alternative molecules.

RECOMMENDATIONS TO CITIZENS

In accordance with the usual health recommendations, in particular those of the World Health Organisation,[14] such as favouring regular and gradual exposure throughout the year rather than intense, time-limited exposure, while adapting exposure and sun protection to one's personal situation, the environment frequented, one's skin and constraints, and while awaiting new scientific results and new regulatory and innovation developments:

- Avoid exposure between 12 p.m. and 4 p.m.
- Wear loose-fitting, light clothing, including clothes intended for use in the water, as well as sun accessories such as parasols, hats and sunglasses.
- Choose the morning or the end of the day for water-based activities.
- Favour the purchase of sunscreens labelled with recognised environmental labels and excluding the most controversial UV filters and ingredients to date, namely: benzophenone-3, octocrylene, homosalate and octinoxate.
- Keep up to date with the development of scientific knowledge on the impacts of sunscreens containing nanoparticulate filters.

RESOURCES

- [1] Surfrider Europe, Healthy Waters campaign: <https://surfrider.eu/en/our-missions/water-quality/healthy-waters-70197.html>
- [2] Surfrider Europe, "Behind UV Filters" conference, 16 June 2022: https://www.youtube.com/watch?v=7n9zGrXdg_Q
- [3] Mitchelmore C.L. et al., "A Critical Review of Organic Ultraviolet Filter Exposure, Hazard, and Risk to Corals", *Environmental Toxicology and Chemistry*, 2021: A Critical Review of Organic Ultraviolet Filter Exposure, Hazard, and Risk to Corals - Mitchelmore - 2021 - *Environmental Toxicology and Chemistry* - Wiley Online Library.
- [4] Corinaldesi C. et al., Impact of inorganic UV filters contained in sunscreen products on tropical stony corals (*Acropora* spp), *Science of the Total Environment*, 637–638, 2018: Impact of inorganic UV filters contained in sunscreen products on tropical stony corals (*Acropora* spp.) - PubMed (nih.gov)
- [5] Environment Agency Science Department, "UV-filters in cosmetics – prioritisation for environmental assessment", 2008, p.97: Microsoft Word - UV_filters_final.doc (publishing.service.gov.uk)
- [6] Agir pour l'environnement, WECF, "Produits solaires pour enfants, trop de substances préoccupantes", 2020: Enquête Produits solaires pour enfants, trop de substances préoccupantes ! | Agir pour l'Environnement (agirpourenvironnement.org).
- [7] Downs C.A. et al., "Benzophenone Accumulates over Time from the Degradation of Octocrylene in Commercial Sunscreen Products", *Chemical Research in Toxicology*, 2021: Benzophenone Accumulates over Time from the Degradation of Octocrylene in Commercial Sunscreen Products | *Chemical Research in Toxicology* (acs.org)
- [8] European Commission, COM (2019) 640 final, The European Green Deal, 2019: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588580774040&uri=CELEX:52019DC0640> and European Commission, COM(2021)400 final, Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil', 2021: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0400&qid=1623311742827>
- [9] European Commission, COM (2020) 667 final, Chemicals Strategy for Sustainability Towards a Toxic-Free Environment, 2020: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A667%3AFIN>
- [10] Regulation (EC) No 1223/2009 on cosmetic products: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02006R1907-20220501>
- [11] In particular its Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02006R1907-20220501>
- [12] Water Framework Directive 2000/60/EC: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02000L0060-20141120&qid=1658221539943>
- [13] European Commission, COM(2022) 143 final, 2022/0092(COD), Proposal for a Directive amending Directives 2005/29/EC and 2011/83/EU as regards empowering consumers for the green transition through better protection against unfair practices and better information: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0143>
- [14] Recommendations of the World Health Organization on ultraviolet radiation, 2022: <https://www.who.int/news-room/fact-sheets/detail/ultraviolet-radiation>

ABOUT SURFRIDER FOUNDATION EUROPE

SURFRIDER FOUNDATION EUROPE is a non-profit organisation whose purpose is to protect and showcase the importance of lakes, rivers, the ocean, waves, and coastlines. It currently has over 15,000 members and is active across 12 European countries through its volunteer-run branches. For 30 years, Surfrider Foundation Europe has been taking action in three areas of expertise: marine litter, water quality and public health, coastal management and climate change.

For more information: surfrider.eu.

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