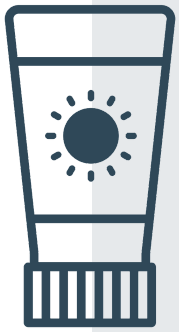
SAFE SUN

Tips for Choosing a Safer Sunscreen

The Problem:

Sunscreens are known to contain toxic substances that are associated with negative human and environmental impacts.



What's Inside Conventional Sunscreens

- UV filters
- Nanoparticles
- Other ingredients that make up the rest of the formulation

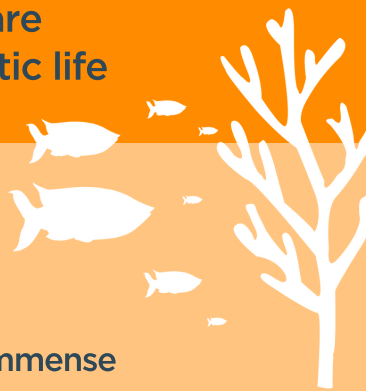
Why Nontoxic Sunscreen Matters to People & Planet:

HUMAN TOXICITY

Some sunscreen ingredients are linked to negative health impacts

CORAL REEFS

Some sunscreen ingredients are associated with harm to aquatic life



4 Key Ingredients of Concern:

1. Oxybenzone
2. Octinoxate
3. Homosalate
4. Nanoparticles

More on Coral Reefs & Sunscreen

Coral reefs are important for the immense biodiversity they support, as well as for the livelihoods of fishermen and economies dependent on tourism. Coral reefs also protect coastlines from storms and erosion, and they remove carbon dioxide from the atmosphere.

Some sunscreen ingredients are associated with harm to these important and precious ecosystems. In order to protect coral reefs, it's important to choose sunscreens that are not only safe for humans, but for all life.

Key Ingredient of Concern:

1 Oxybenzone

One of the most commonly-used sunscreen chemicals. This ingredient, sometimes called benzophenone-3, is not to be confused with benzophenone, another common sunscreen ingredient.

Human Health Impacts

Oxybenzone is linked to endocrine disruption, which is chemical interference with normal hormone function. It is also linked to organ system toxicity, contact allergies, and photoallergies, meaning exposure to light is required to generate an allergic response.

Environmental Impacts

Oxybenzone is harmful to aquatic life, especially coral reefs. This chemical is so harmful that in 2018, Hawaii banned it to protect coral reefs.

Key Ingredient of Concern:

2 Octinoxate

A UV filter that protects from UVB rays, but not UVA rays. On packaging, it may also be listed as OMC, methoxy-cinnamate or ethylhexyl methoxy-cinnamate. Octinoxate is also one of the most commonly used sunscreen chemicals.

Human Health Impacts

Octinoxate is linked to endocrine disruption, as well as reproductive toxicity. Researchers have detected this chemical in breast milk, urine and blood.

Environmental Impacts

This sunscreen chemical is harmful to aquatic life and coral reefs. Because of its impacts, it was also banned by the state of Hawaii in 2018.

Key Ingredient of Concern:

3 Homosalate

Homosalate is a UV absorber, meaning it absorbs UV light, as opposed to deflecting it. Homosalate absorbs UVB rays only. This ingredient is very commonly used.

Human Health Impacts

Homosalate is linked to hormone disruption. It also may enhance the absorption of pesticides, like bug sprays. It may also enhance the penetration of other harmful ingredients found within the formulation.

Environmental Impacts

This ingredient is persistent, meaning it doesn't readily break down in the environment.

Safer Sunscreen Ingredients

Titanium Dioxide: A naturally-occurring mineral found in the earth's crust. It is a UV absorber, meaning it soaks up UV rays, as opposed to UV reflectors, which deflect rays. The majority of chemical sunscreens are reflectors. Titanium dioxide absorbs UVB rays and some UVA rays, but may not provide full UVA protection. Titanium dioxide is safe for people and the planet when it's non-nanoparticle.

Zinc Oxide: Zinc oxide is a naturally-occurring UV absorber. Zinc oxide offers broad spectrum protection, as it protects against both UVA and UVB rays. When non-nanoparticle, zinc oxide is safe for humans and the environment.

Don't let labels fool you. Some sunscreens labeled as "reef safe" contain ingredients known to harm coral reefs. This is because there are no legal requirements or regulations for the use of the term "reef safe" on packaging. If the active sunscreen ingredient is anything besides non-nanomaterial titanium dioxide or non-nanomaterial zinc oxide, the ingredient may hurt coral reefs.

REEF SAFE

Other Ingredients in Sunscreen

Sunscreens contain UV filters, of course. But they also contain additional ingredients that serve different functions within the formulation, including preservatives, emulsifiers, emollients, moisturizers, photostabilizers, and more. Some ingredients can be associated with negative impacts on human and environmental health. Check out our Hazard List, a compilation of some of the worst toxic chemical offenders across categories, to learn more about what other ingredients may be in your sunscreen formulation.

Visit: https://www.madesafe.org/science/hazard-list/

Key Ingredient of Concern:

4 Nanoparticles

Nanoparticles can be 1000 times smaller than the width of a human hair. In sunscreen, they're most commonly found as nanoparticle titanium dioxide or zinc dioxide.

Human Health Impacts

Nanoparticles have not been properly assessed for their potential effects on human health. Researchers don't yet understand the impacts that nanoparticles could have on people. But because of their infinitesimally small size, nanoparticles may be more chemically reactive and therefore more bioavailable, meaning the particles are fast tracked into the body.

Environmental Impacts

Nanoparticles' impact on environmental health has not yet been properly assessed. Researchers have suggested that nanoparticle titanium dioxide may be implicated in coral reef degradation. Without substantial safety data, researchers don't yet understand what risks they may pose.

Understanding UV Spectrum

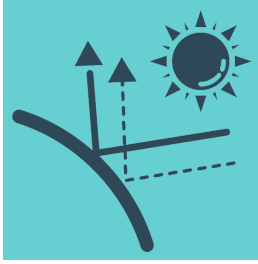
Ultraviolet light, aka UV light, is light from the sun that is invisible to the naked eye. Sunscreen works to protect humans from two different kinds of UV light. UVA light has a longer wavelength and is the kind of ray associated with premature aging of the skin. UVB light has a shorter wavelength and is the ray associated with sunburn and damage to the skin. Protection against both is crucial.

Choosing the Right SPF

SPF stands for sun protection factor. The number indicates the level of protection against UVB rays, but the numbering system isn't user-friendly.

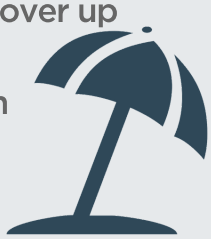
A higher SPF doesn't mean the amount of coverage jumps up significantly. SPF 15 blocks 93% of UVB rays. SPF 30 blocks 97% of UVB rays. SPF 50 blocks 98% of UVB rays. And SPF 100 blocks 99% of UVB rays. SPF is a measure of protection against UVB rays only.

But remember that protection against UVA rays is important too, so choose a "broad spectrum" sunscreen, which protects against both UVA and UVB rays.



Safer Sun Tips

- Cover up and find shade. We suggest using clothing and hats as an additional layer of protection. Color, material and weave all contribute to the level of protection fabrics provide. In general, the tighter the weave, the more protection from the sun.
- Avoid the strongest sun. If possible, skip the sun between 10 am and 2 pm.
- Wear UV blocking sunglasses. Don't forget to protect your eyes from UV rays too!
- Beach umbrellas don't protect you from the sun. Umbrellas create the illusion of protecting shade, but UV rays aren't just shining down on you from the sun, they're also reflecting off nearby sand. In one study that measured beach umbrella protection, researchers found that umbrellas only offered an SPF value between 3 and 7! So wear sunscreen and protective clothing too.
- Don't forget to cover up in the car. Many car windows filter out UVB, but not UVA rays. And the windshield is usually more protective than the side windows. So if you're heading on a cross-country road trip this season, cover up and slather on the 'screen.
- Look for mineral sunscreen with non-nano titanium dioxide or non-nano zinc oxide.



Don't Forget Vitamin D!

The bulk of vitamin D is absorbed through the skin from the sun; very few foods contain significant amounts of Vitamin D. So, if you completely avoid the sun, you'll be missing out on this crucial vitamin that the majority of Americans are deficient in.

Go outside early in the morning and later in the afternoon when the sun is not at its strongest to avoid the most intense exposure. But don't overdo it! Consult your doctor to learn how to safely get vitamin D from the sun.

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For more information on sunscreens, as well as scientific sources, visit: https://www.madesafe.org/education/whats-in-that/sunscreen/