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What Is Reef-Safe Sunscreen?

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SPF 30 minimum. Broad-spectrum. Water-resistant. These are all things you probably know to look for when you're shopping for sunscreens. But thanks to recent studies and new legislation, there's another necessary detail to add to your checklist: reef-safe.

A 2008 European study found that approximately 14,000 tons of sunscreen end up in oceans each year. The highest concentration of high-risk sunscreen ingredients (more on that below) were found near coral reefs that are most popular with tourists. This means the sunscreen you put on before surfing, kayaking, or swimming in the ocean doesn't just stay on your skin and protect you from UV damage, it washes off and remains in the ocean, causing serious damage to coral reefs and marine life.

How exactly are sunscreens messing with the ocean?

A 2015 study study in the journal Archives of Environmental Contamination and Toxicology found that the popular sunscreen ingredient oxybenzone is directly linked to coral bleaching, the top cause of coral death worldwide. This phenomenon happens when coral loses or lacks the nutrients they typically receive from algae and eventually turn white and die.

Not only do oxybenzone and octinoxate (another high-risk sunscreen ingredient) cause bleaching in existing coral, they are also damaging the DNA of young coral, therefore stunting their growth. And it doesn't take a lot of these chemicals to do irreparable harm. That 2015 study also found that they start causing damage to corals at concentrations as low as the equivalent of one drop of water in six-and-a-half Olympic-sized swimming pools. The scary part is, concentrations more than 10 times that amount have been measured at popular swimming beaches in Hawaii.

Coral reefs are the worlds most productive marine ecosystems and support commercial and recreational fisheries and tourism, John Fauth, one of the researchers behind the study, told UCF Today. In addition, reefs protect coastlines from storm surge. Worldwide, the total value of coral reefs is tremendous. And they are in danger.

Heres the thing: Oxybenzone and octinoxate are super-common ingredients found in more than 3,500 sun protection products, according to NPR . They also pop up in many moisturizers, primers, and foundations that contains SPF. So it's crucial to look for a reef-friendly option.

What is a reef-safe sunscreen?

If you're looking for a chemical sunscreen (sunscreens that sink into skin and work by absorbing UV rays and converting them to heat), any version that does not contain oxybenzone or octinoxate are considered safe for ocean use. Flip over the bottle and look at the drug facts. The sun-protection ingredients will be listed at the top under "active ingredients." If you do not see these two listed, you are good to go.

As for mineral (aka physical) sunblocks, these are powered by the minerals zinc oxide and titanium dioxide . Tiny mineral particles sit on top of your skin and deflect UV rays, says Gary Goldenberg , MD, assistant clinical professor of dermatology at the Icahn School of Medicine at Mount Sinai in New York City.

Not to make matters more complicated, but just because they don't contain oxybenzone or octinoxate, doesn't mean all mineral sunscreens are ocean-safe. Because zinc and titanium tend to leave a grey cast on skin (you can thank the minerals' white color for that one), brands have been utilizing nano-sized particles to minimize the discoloration. Problem is, those microscopic minerals can be easily absorbed by and harm coral and marine life, says Whitney Bowe , MD, a dermatologist in NYC. According to the New York Times, any particles smaller than 100 nanometers can be consumed by coral. So if you'll be spending time in the ocean, look for key words like "non-nano" or "reef friendly" on the label of your mineral SPF.

Do they work as well as "regular" sunscreens?

If you're going the mineral route, rest assured: Mineral-based sunscreens that contain zinc oxide and titanium dioxide are just as effective as chemical sunscreens, says Joshua Zeichner , MD, a New York City dermatologist. But there is a catch: They take a bit more work to blend it because they're not designed to absorb into the skin. "You might also have to apply it more often since it can rub off easier," says Dr. Goldenberg. Still, when it comes to sun protection, its better for your skin to look white from sunscreen than to look red from sunburn, Dr. Zeichner advises.

What else is being done to protect coral reefs?

Hawaii passed a groundbreaking law early in 2018 that will ban the sale of any over-the-counter sunscreen containing either oxybenzone or octinoxate. The bill will go into effect on January 1, 2021. "Amazingly, this is a first-in-the-world law," state Sen. Mike Gabbard told the Honolulu Star-Advertiser . "So Hawaii is definitely on the cutting edge by banning these dangerous chemicals in sunscreens."

And late in 2018, the nation of Palau followed suit with a ban on sunscreens containing ingredients they define as reef toxic. Those prohibited sunscreens can be confiscated from tourists entering the country, and shops selling them can be fined up to $1,000. In 2019, Key West also jumped on board , voting on a sale ban that will also go into effect in 2021.

Others are taking matters into their own hands. The outdoor retailer REI will stop selling oxybenzone laden sunscreens by 2020 . And Turks & Caicos touring operation Big Blue Collective , which offers ocean activities like snorkeling, diving, and kayaking, posted this on their website: Big Blue will ONLY ALLOW the use of 100 percent biodegradable sunscreen on all of our trips. Non-biodegradable sunscreen IS NOT TO BE USED on Big Blue trips. The company's co-founder Mark Parrish spoke to The New York Times about the ban . We make it mandatory, which is easier said than done, he said. The key is telling people well in advance, putting it on the website and saying this is our policy, and giving them a chance to shop at home.