

## Sunscreen Ingredients to Avoid

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Overall, there are two basic types of skin cream or lotion protection: sunscreens, which absorb the sun's rays via a chemical reaction, and "blocks"—zinc oxide and titanium dioxide—which reflect and create a physical barrier against rays. Most commercial products offer a combination of the two, but when possible avoid the following ingredients:

**PABA (Para Amino Benzoic Acid):** It works by absorbing UV rays in much the same way as Oxybenzone. It filters UV-light on the surface of the skin, converting it from light to heat, but it is also absorbed through the skin. Oxford University Scientist John Knowland shows that PABA seemed to damage DNA, thus increasing the risk of skin cancer. Though rarely used now in sunscreens, beware of products that contain the ingredient. Forty percent of the population is sensitive to it, experiencing red, itchy skin.

**Benzophenone-3 (Oxybenzone), Homosalate, and Octyl-Methoxycinnamate (Octinoxate) (Trade Names: Eusolex 2292 and Tinosorb OMC):** These chemicals are of more concern because they have shown estrogenic activity in lab tests. Dr. Margret Schlumpf of the University of Zurich's Institute of Pharmacology and Toxicology says they have been shown to disrupt hormones, affecting the development of the brain (particularly the hypothalamo-pituitary-gonadal system) and reproductive organs in laboratory rats. Because people are exposed simply by eating fish (where benzophenone accumulates in the fat), using sunscreen containing these chemicals unduly increases the exposure. Based on her studies, Dr. Schlumpf advises people avoid products containing benzophenone and the related chemicals above.

**Parabens (butyl-, ethyl-, methyl-, and propyl-):** Parabens may also mimic estrogen, but because they are common in sunscreens, avoiding them may prove difficult.

**Padimate-O and Parsol 1789 (2-ethylhexyl-4-dimethylaminobenzoic acid and avobenzonone):** These two chemicals have the potential to damage DNA when illuminated with sunlight. On the skin's surface, these chemicals do protect from UV damage; however, once absorbed into the skin, these same chemicals can prove destructive. Dr. Knowland's research indicates that Padimate-O and Parsol 1789 "are excited by the UV energy which they absorb and become reactive, acquiring the potential to attack cellular components, including DNA." Knowland cautions that "DNA damage inflicted by an excited sunscreen is much less capable of being repaired by naturally occurring repair mechanisms than the DNA damage inflicted by UV alone."

**Avobenzone** (butyl-methoxydibenzoylmethane; Parsil 1789). This chemical Sunscreen is still allowed by the European Union. However, its safety is questionable since it easily penetrates the skin and is a strong free radical generator.

### **Octocrylene, an Emerging Photoallergen**

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**Background** Octocrylene is a new emerging photoallergen. We report and discuss 50 cases of photoallergic contact dermatitis from octocrylene use and/or positive photopatch test reactions to this UV filter and draw attention to the unexpected association in adults with a history of photoallergic contact dermatitis from ketoprofen.

**Observations** Patients were divided in 3 groups: group A comprised 11 children; group B, 28 adults with a history of photoallergy from sunscreen products; and group C, 14 adults systematically tested with octocrylene because of a history of photoallergy from ketoprofen. All patients but 3 in group C had positive test reactions to octocrylene. Ten of 11 children in group A and 9 of 28 adults in group B had positive patch test reactions to octocrylene. One child in group A, the other 19 adults in group B, and 11 of 14 adults in group C had positive photopatch test reactions to octocrylene. All adults in group C and 24 of 28 adults in group B had a history of photoallergy from ketoprofen and positive patch test or photopatch test reactions to other allergens that are often positive in patients with photoallergy from ketoprofen, especially fragrance components.

**Conclusions** Octocrylene appears to be a strong allergen leading to contact dermatitis in children and mostly photoallergic contact dermatitis in adults with an often-associated history of photoallergy from ketoprofen. Patients with photoallergy from ketoprofen frequently have positive photopatch test reactions to octocrylene. These patients need to be informed of sunscreen products not containing octocrylene, benzophenone-3, or fragrances.