

CONTACT POINT

Allergic contact dermatitis caused by vinylpyrrolidone/eicosene copolymer in a sunscreen

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KEYWORDS: allergic contact dermatitis, CAS no. 28211-18-9, case report, sunscreen, vinylpyrrolidone (VP)/eicosene copolymer

Copolymers are large molecules with an extensive range of properties, and are thus widely used in cosmetic products. They have been sporadically reported as causing allergic contact dermatitis (ACD) when present in a variety of cosmetics over the last 30 years. Here, we present a case of sunscreen-related copolymer ACD.

CASE REPORT

A 46-year-old man presented with a history of an eczematous rash only at body sites where he had applied a particular sunscreen. He also developed a similar rash on his hands and wrists after applying the same sunscreen to his children and when he picked up his children after they had been using the sunscreen. He was patch tested with IQ chambers on Scanpor tape with the baseline, medicaments, sunscreen and fragrance test series, as well as with his own sunscreen, tested "as is". Patch testing was performed according to British Society for Cutaneous Allergy recommendations. The patient had + reactions to triclosan on day (D) 2 and D4, which were apparently not of current relevance. Breakdown ingredients of the sunscreen were obtained from the manufacturer with concentrations as advised by the Informations und Dokumentationen für Kontakthallegien (IDOK) des Informationsverbundes Dermatologischer Kliniken (IVDK). A ?+ reaction to vinylpyrrolidone (VP)/eicosene copolymer 5% pet. on D2, which increased to a ++ reaction on D4, was observed.

DISCUSSION

Copolymers are large molecules with high molecular weights; because of this, their ability to sensitize has been underestimated. They have film-forming, binding, viscosity-increasing and emulsion-stabilising properties, among others.¹ They are used in a wide range of cosmetics, including lipsticks, eye shadows, bronzers, hair gels, moisturizers, and

sunscreens. ACD caused by copolymers has been reported sporadically since the late 1980s.^{2,3} Contact allergy to copolymers in sunscreens has been previously reported, with three different copolymers being implicated: polyvinylpyrrolidone (PVP)/eicosene^{4,5}; PVP/1-triacontene⁶; and C30-38 olefin/isopropyl maleate/maleic anhydride.⁷

PVP/eicosene copolymer functions as a film-former, binder, suspending agent, and viscosity-increasing agent.¹ In sunscreens, it enhances water resistance. It is also used as a pigment dispersant and solubilizer for dyes. PVP/eicosene copolymer has hitherto been reported twice as causing sunscreen ACD.^{4,5} Furthermore, PVP/eicosene copolymer (CAS no. 28211-18-9) was identified as an ingredient in 90 sunscreens.¹ VP/eicosene copolymer ACD was reported in 2004 in relation to the use of an emollient cream.⁸

We report this case to highlight the uncommon, but ongoing, role of copolymers in ACD and specifically in sunscreen-related ACD.

CONFLICTS OF INTEREST

The authors declare no potential conflict of interests.

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How to cite this article: Waas RLV, Hill G. Allergic contact dermatitis caused by vinylpyrrolidone/eicosene copolymer in a sunscreen. *Contact Dermatitis*. 2018;1-2. <https://doi.org/10.1111/cod.13127>