

Allergic contact dermatitis from polyvinylpyrrolidone (PVP)/1-triacontene copolymer in a sunscreen

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(PVP)/ 1-triacontene copolymer.

Case Report

A 3½-year-old Caucasian girl presented with a 2-year history of an eczematous rash, developing in summer months, at sites of application of sunscreens. Sunlight alone did not provoke the rash. She had a past history of hay fever, took no medication and had no known allergies.

Patch testing to a modified standard series of allergens and the patient's own sunscreens showed a + reaction at D2 and D4 to nickel and to 1 of the sunscreens. Photopatch testing was negative. Patch testing to the individual ingredients of the sunscreen showed a + reaction at D2 and D4 to 1 ingredient of the sunscreen,

polyvinylpyrrolidone (PVP)/1-triacontene (10% pet.). Control patch testing to this sunscreen ingredient in 20 successive patients was negative.

Discussion

PVP/1-triacontene is known by several names including the synonym tricontanyl-PVP; trade name Antaron WP-660 and CAS registry name 2-pyrrolidinone, 1-ethenyl, polymer with 1-triacontene (CAS number 1364455-69-7). It is a high molecular weight copolymer incorporated specifically into sunscreen agents to contribute to the water-resistant nature of the formulation, by helping its adherence to the skin.

The INCI inventory (1) lists 11 different PVP copolymers. They are added to cosmetics for a number of functions including antistatic, film-forming, binding and suspending properties. PVP alone, also known as povidone, is considered to be non-sensitizing (2). Sensitization has, however, been previously reported to 2 other PVP copolymers, namely, PVP/eicosene copolymer in sunscreen agents (3, 4), and PVP/hexadecane copolymer in a bath oil (5). To the best of our knowledge this is the first report of allergic contact dermatitis to PVP/1-triacontene copolymer.

The manufacturers of the sunscreen state that all of their children's sunscreen products contain PVP/1-

triacontene. Recent increased skin cancer prevalence and promotion of the use of sunscreens may lead to the PVP/copolymers becoming increasingly common sensitizers.

References

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