

CONTACT POINT

Allergic contact dermatitis caused by isopropyl lauroyl sarcosinate

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Isopropyl lauroyl sarcosinate (CAS no. 230309-38-3) is an amino acid-based ester that is used to dissolve poorly soluble substances. We herein present the first documented case of allergic contact dermatitis caused by isopropyl lauroyl sarcosinate.

CASE REPORT

A 43-year-old Japanese woman presented with a 3-year history of oedematous erythema and vesicles accompanied by a burning sensation and pruritus of the face. Before visiting our hospital, she was treated with topical corticosteroids, which led to improvement, although dermatitis recurred. Allergic contact dermatitis caused by a cosmetic was suspected. Patch tests were conducted on the patient's upper arm with Finn Chambers on Scanpor tape and Patch Test Panel (S) (Sato Pharmaceutical, Tokyo, Japan). The reactions were read on day (D) 2, D3, and D7, in accordance with ICDRG criteria. Positive reactions to a cosmetic used by the patient tested "as is" (D2, ?+; D3, +; D7, ++; Figure 1) and to gold sodium thiosulfate (a delayed reaction 2 months after application) were observed. Patch tests of individual ingredients contained in the cosmetic, at concentrations as used in the product, gave positive results for isopropyl lauroyl sarcosinate 5% ethanol (D2, ?+; D3, +; D7, +) but not for the other 22 ingredients. Four healthy volunteers were negative for isopropyl lauroyl sarcosinate as tested above. A repeated open application test with isopropyl lauroyl sarcosinate 5% ethanol also resulted in erythema on D3.

DISCUSSION

Isopropyl lauroyl sarcosinate (glycine, *N*-methyl-*N*-[1-oxododecyl]-, 1-methylethyl ester; CAS no. 230309-38-3; molecular weight, 313.48; Figure 2) is used in oily vehicles to improve the solubility, efficacy and

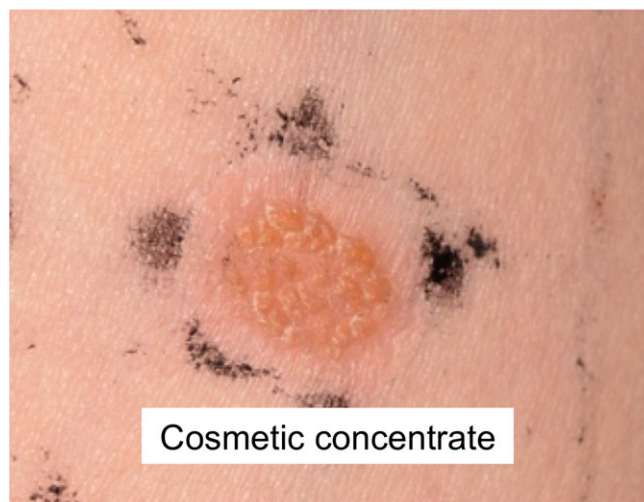
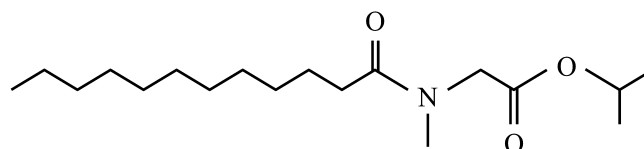


FIGURE 1 Positive reaction to the cosmetic patch tested "as is" on day 7 (++)

photostability of ultraviolet filters.¹ According to the Household Products Database of the US National Library of Medicine, isopropyl lauroyl sarcosinate is present in 3 consumer products.



Molecular formula: C₁₈H₃₅NO₃
Molecular weight: 313.48
CAS no. : 230309-38-3

FIGURE 2 Chemical structure of isopropyl lauroyl sarcosinate

Sodium lauroyl sarcosinate, which is a sarcosine derivative belonging to the hydroxyl group, has a structure similar to that of isopropyl lauroyl sarcosinate. Sodium lauroyl sarcosinate is used as a surfactant and is contained in detergents, and some cases of allergic contact dermatitis caused by the substance have been reported.²⁻⁴ Although we have not yet patch tested with sodium lauroyl sarcosinate in the present case, the patient complained of skin problems after using detergents such as hair shampoo and dishwashing liquid.

To the best of our knowledge, this is the first case report documenting allergic contact dermatitis caused by isopropyl lauroyl sarcosinate.

Conflict of interest

The authors declare no potential conflict of interests.

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