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Allergic contact dermatitis to methyl hydroxystearate in a rubber respirator

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Testing for allergic contact dermatitis caused by rubber usually focuses on commercially available patch test materials. Occasionally, other chemicals are involved.

Case Report

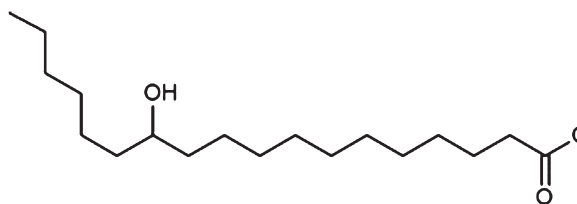
A 34-year-old non-atopic man presented with a history of intermittent facial eczema. He was occasionally required to wear a standard issue rubber respirator mask as part of his occupational training in the military (Fig. 1). However, 12 hr after wearing a previously unused mask, he developed erythematous itchy papules over the ears and forehead, where his skin had been in contact with the mask. He had observed that his new mask was covered in a fine powder, unlike his previous mask.

He was patch tested with an extended European baseline series (Almirall-Hermal, Reinbek, Germany, with Finn Chambers® on Scanpor® tape), additional rubber chemicals, shavings from his old and new masks, and surface powder from the new mask. Readings at D2 and D4 according to International Contact Dermatitis Research Group criteria showed 2+ reactions to both masks and the powder. With some difficulty, the mask manufacturer provided samples of the individual ingredients used in producing the rubber masks. When the patient was patch tested with these samples (appropriately diluted), the only reaction was to methyl hydroxystearate (1% pet., purity unknown), with 2+ reactions at both D2 and D4. Seven controls were negative.

Methyl hydroxystearate (CAS 141-23-1; methyl 12-hydroxyoctadecanoate, methyl 12-hydroxystearate)



Fig. 1. Rubber respirator mask.



Methyl hydroxystearate (CAS 141-23-1)

Fig. 2. Structural formula of methyl hydroxystearate.

(Fig. 2) is a medium-range melting synthetic wax, derived from hydrogenated castor oil, and is used as a processing aid in the processing of rubbers, where it causes a low coefficient of friction on the surface, reducing surface tack (1). It blooms from the surface to give a non-greasy effect; the blooming may be heavy. The substance is also used in cosmetics and speciality inks.

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Discussion

This is the first reported case report of contact allergy to methyl hydroxystearate in the context of rubber allergy. Clinically, we usually think of rubber chemicals as being accelerators or anti-ozonants, but a plethora of other chemicals are also used in rubber manufacture.

The methyl hydroxystearate had 'bloomed' (aggregated) onto the surface of the new mask. We have no

information on the technical specifications of the substance, and therefore whether the allergenic fraction lies within an impurity. A material safety data sheet suggested that there was no risk of sensitization (2).

This case also shows that the generally available patch test allergens do not detect all cases of contact allergy to rubbers, and that testing with a patient's own materials is important.

References

- 1 <http://www.akrochem.com/pdfs/proaids/X-proaid%20lcf.pdf> (last accessed 25 January 2012).
- 2 [http://www.acmehardesty.com/system/sheets/214/original/Methy12HydroxyStearate MSDS.pdf](http://www.acmehardesty.com/system/sheets/214/original/Methy12HydroxyStearate%20MSDS.pdf) (last accessed 25 January 2012).