

## Correspondence

### Fragranced hand gels: beware the risk of contact allergy

doi: 10.1111/ced.14639

We would like to raise awareness among dermatologists of the potential risk of contact allergy in patients using hand sanitizers/gels. We report a patient with signs of contact allergy following use of hand sanitizer.

An 11-year-old boy presented to the children's emergency department in the autumn of 2020 with acute blistering of his palms. No other parts of the body or mucosal surfaces were involved. He was systemically well with no significant medical history except for eczema in early childhood. He had recently returned to school and was using hand gel regularly as part of precautions to reduce SARS-CoV-2 (COVID-19) transmission during the pandemic. There had been no other contact with chemicals, plants, crafting materials, glues, paints or homemade 'slime'. Photographs were taken at presentation and sent to the dermatology on-call service (Fig. 1). These images showed swelling and large bullae on the thenar eminence and lateral fingers. There was no erythema, nail involvement or significant scaling. Our initial impression was that the history and clinical presentation was consistent with acute

pompholyx that was either irritant or allergic in origin. We started the patient on a superpotent topical steroid cream (Dermovate®; GlaxoSmithKline, Brentford, Middlesex, UK) twice daily, white soft paraffin/liquid paraffin 50 : 50, and advised using an antiseptic emollient (Dermol 500®; Dermal Laboratories, Hitchin, Hertfordshire, UK) instead of soap for hand-washing. At review 1 week later there was good improvement. Viral and bacterial swabs were both negative.

A detailed contact allergy history was taken and the patient was referred for patch testing. Testing to the standard series showed inconclusive results to some fragrances in the standard series (myroxylon pereirai, fragrance mix 1, fragrance mix 2, linalool and limonene). We repeated the patch testing to fragrance in the standard series and added the fragrance series. The repeat test confirmed allergic contact dermatitis to fragrance with a positive result to myroxylon pereirai, linalool, limonene, sandalwood oil and majantol. The hand gels used by the patient were found to contain linalool and limonene. Following this result, the patient's parents were advised to ensure only fragrance-free hand sanitizer and soaps are used in future.

Developing hand dermatitis, both irritant and allergic, to wet work, soaps and disinfectant scrubs is not new,

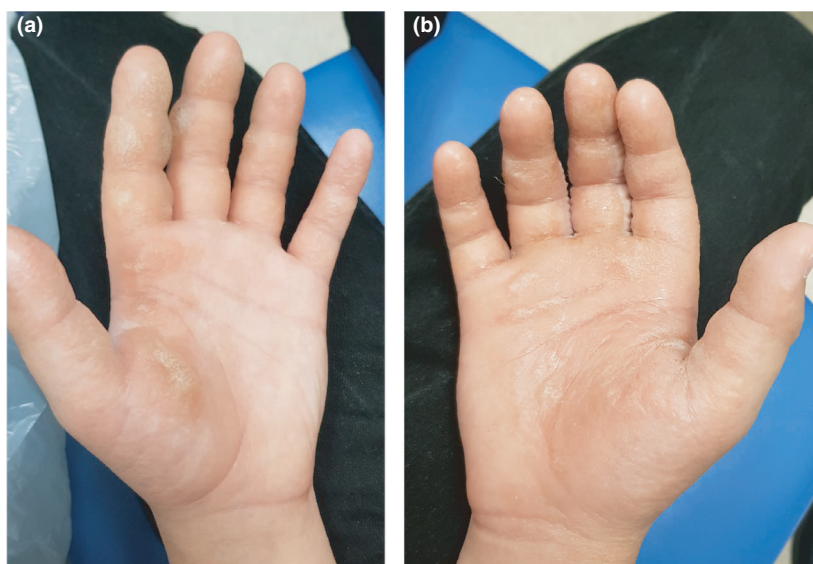


**Figure 1** (a,b) Clinical photographs of an 11-year-old patient presenting with pompholyx on (a) his left and (b) right hand, as a result of allergic contact dermatitis to fragrance.

**Table 1** Alcohol-based hand sanitizers/gels and their ingredients.

| Hand sanitizer/gel                        | Ingredients as listed on label                                                                                                                                                                                                                                                                                                                                                                                                                                                | Potential fragrance allergens                                                                                                                                                                                                                            |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dettol® Hand Hygiene Gel Aloe Vera        | Alcohol (63%), Aqua, PEG/PG Co-polymer, Propylene Glycol, Acrylates, C10-30 Alkyl Acrylate, Crosspolymer, Tetrahydroxypropyl Ethylenediamine, t-Butyl Alcohol, Aloe barbadensis leaf extract, Parfum, Colorant                                                                                                                                                                                                                                                                | Parfum                                                                                                                                                                                                                                                   |
| Carex® Original Complete Defence Hand Gel | Alcohol Denat. (70%), Aqua, Glycerin, Carbomer, Aminomethyl Propanol, Benzophenone-1, Parfum, Citronellol, Coumarin, Limonene, Alpha-Isomethyl Ionone, Geraniol, Hexyl Cinnamal, Butylphenyl Methylpropional, Linalool, CI 42051                                                                                                                                                                                                                                              | Parfum, Citronellol, Limonene, Linalool                                                                                                                                                                                                                  |
| Cuticura® Original Antibacterial Hand Gel | Alcohol Denat. (57.6%), Aqua, Propylene Glycol, Carbomer, Triethanolamine, Parfum, Benzyl Benzoate, Linalool                                                                                                                                                                                                                                                                                                                                                                  | Parfum, Linalool                                                                                                                                                                                                                                         |
| Milton® Antibacterial Hand Gel            | Ethanol (80%), aqua, propan-2-ol, 2-amino-2-methylpropanol, acrylates/C10-30 alkyl acrylate crosspolymer, pentylene glycol, glycerin, coco caprylate, 2-aminobutane-1-ol                                                                                                                                                                                                                                                                                                      | None (fragrance free)                                                                                                                                                                                                                                    |
| Neal's Yard® Natural Defence Hand Rub     | Alcohol Denat. <sup>c</sup> (70%), Hamamelis Virginiana (Witch Hazel) Extract, Alcohol, Glycerin, <sup>c</sup> Aqua/Water, Cymbopogon Citratus Leaf Oil, <sup>b</sup> Lavandula Hybrida Oil, <sup>b</sup> Thymus Vulgaris (Thyme) Flower/Leaf Oil, <sup>b</sup> Vetiveria Zizanioides Root Oil, <sup>b</sup> Cinnamomum Zeylanicum Leaf Oil, <sup>b</sup> Melaleuca Viridiflora Leaf Oil, <sup>b</sup> Citral, Linalool, Geraniol, Limonene, Eugenol, Citronellol, Isoeugenol | Cymbopogon Citratus Leaf Oil, Lavandula Hybrida Oil, Thymus Vulgaris (Thyme) Flower/Leaf Oil, Vetiveria Zizanioides Root Oil, Cinnamomum Zeylanicum Leaf Oil, Melaleuca Viridiflora Leaf Oil, Citral, Linalool, Geraniol, Limonene, Eugenol, Citronellol |
| Waitrose Essentials Hand Gel              | Alcohol Denat. (62%), Aqua, Polysorbate 20, Glycerin, Propylene Glycol, Parfum, Carbomer, Aminomethyl Propanol, CI 60730                                                                                                                                                                                                                                                                                                                                                      | Parfum                                                                                                                                                                                                                                                   |
| Wilko Antibacterial Hand Gel              | No full ingredient list                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Not known                                                                                                                                                                                                                                                |
| Tesco Health Hand Gel                     | No full ingredient list                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Not known                                                                                                                                                                                                                                                |
| Halo Hand Gel (online)                    | No full ingredient list                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Not known                                                                                                                                                                                                                                                |
| Calypso Antibacterial Hand Gell (online)  | No full ingredient list                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Not known                                                                                                                                                                                                                                                |
| Diversey Softcare MED H5 <sup>a</sup>     | Propan-2-ol (50–75%), propan-1-ol, water, Glycerin, Carbomer, Propylene glycol, Isopropyl myristate, Aminomethyl propanol, Aloe barbadensis leaf, Tocopheryl acetate                                                                                                                                                                                                                                                                                                          | None (fragrance free)                                                                                                                                                                                                                                    |

<sup>a</sup>Available in the clinical setting. <sup>b</sup>organic. <sup>c</sup>organic origin from essential oils.

and is an important cause of occupational disease among healthcare workers.<sup>1</sup> To curb the spread of COVID-19, regular hand-washing and use of alcohol-based hand sanitizers/gels are part of everyday hygiene guidance for the general public,<sup>2</sup> and therefore, the incidence of hand dermatitis is likely to rise.<sup>3,4</sup> The World Health Organization and the Food and Drugs Administration advises that a minimum alcohol content of 60% is required to inactivate viral particles; however, it is also important to be aware that hand sanitizers/gels may also contain other constituents, including thickeners, humectants (e.g. propylene glycol) and fragrances.<sup>5</sup>

We have compiled a table of alcohol-based hand sanitizers/gels and their ingredients, which have recently been independently investigated to confirm their alcohol content or are available in a clinical setting. The ingredients for four sanitizers were not available online. Out of those that listed their ingredients, five out of the seven products include fragrance (Table 1).

We would like to highlight to other dermatologists that contact allergy to fragrance and/or other components in hand sanitizer/gels may present acutely with pompholyx, and to consider testing patients with the standard and fragrance series if this is suspected.

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Conflict of interest: the authors declare that they have no conflicts of interest.

Accepted for publication 11 March 2021

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