

Fragranced hand gels – beware the risk of contact allergy

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Figures 1

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We would like to raise awareness amongst dermatologists of the potential risk of contact allergy in patients using hand sanitisers/gels. An eleven-year-old boy presented to the children's emergency department in Autumn 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 past medical history except eczema in early childhood. He had recently started back at 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 (Figure 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 him on a superpotent topical steroid cream (Dermovate®) twice daily, white soft paraffin 50:50, and an antiseptic emollient (Dermol 500®) to wash the hands. At review one week later there was good improvement. Viral and bacterial swabs were both negative.

A detailed contact allergy history was taken and he 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 to myroxylon pereirai, linalool, limonene, sandalwood oil and majantol. The hand gels were found to contain linalool and limonene. Following this his parents were advised to ensure only fragrance-free hand sanitiser and soaps are used.

Developing hand dermatitis, irritant and allergic, to wet-work, soaps and disinfectant scrubs is not new and is an important cause of occupational health disease amongst healthcare workers¹. To curb the spread of COVID-19, regular hand-washing and use of alcohol-based hand sanitisers/gels are part of everyday hygiene guidance for the general public². Therefore, the incidence of hand dermatitis is likely to rise^{3,4}. The World Health Organisation (WHO) and the Food and Drugs Administration (FDA) advises that a minimum alcohol content of 60% is required to inactivate viral particles, however it also important to be aware that hand sanitisers/gels may also contain other constituents including thickeners, humectants (e.g. propylene glycol) and fragrance⁵. We have compiled a table of alcohol-based hand sanitisers/gels and their ingredients that have recently been independently investigated to confirm their alcohol content or are available in a clinical setting. The ingredients for four sanitisers were not available online. Out of those which listed their ingredients, five out of seven include fragrance (Table 1).

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

Figure 1: Clinical photographs of an 11 year old patient presenting with pompholyx as a result of allergic contact dermatitis to fragrance. 1a: left hand. 1b: right hand.

Hand sanitiser/gel	Ingredients	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 defense 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	Fragrance free
Neal's Yard® natural defence hand rub	Alcohol Denat.** (70%), Hamamelis Virginiana (Witch Hazel) Extract, Alcohol, Glycerin**, Aqua/Water, Cymbopogon Citratus Leaf Oil*, Lavandula Hybrida Oil*, Thymus Vulgaris (Thyme) Flower/Leaf Oil*, Vetiveria Zizanoides Root Oil*, Cinnamomum Zeylanicum Leaf Oil*, Melaleuca Viridiflora Leaf Oil*, Citral, Linalool, Geraniol, Limonene, Eugenol, Citronellol, Isoeugenol.*Organic. **Organic Origin. From Essential Oils.	Cymbopogon Citratus Leaf Oil, Lavandula Hybrida Oil, Thymus Vulgaris (Thyme) Flower/Leaf Oil, Vetiveria Zizanoides Root Oil, Cinnamomum Zeylanicum Leaf Oil, Melaleuca Viridiflora Leaf Oil, Citral, Linalool, Geraniol, Limonene, Eugenol, Citronellol
Waitrose essential 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	
Tesco health hand gel	No full ingredient list	
Online – Halo hand gel	No full ingredient list	
Online – Calpso antibacterial hand gel	No full ingredient list	
*Diversey Softcare MED H5	Propan-2-ol (50-75%), propan-1-ol, water, Glycerin, Carbomer, Propylene glycol, Isopropyl myristate, Aminomethyl propanol, Aloe barbadensis leaf, Tocopheryl acetate.	Fragrance free

Table 1: Alcohol-based hand sanitisers/gels and their ingredients

*available in the clinical setting

References

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