

Cocospropylenediamine-guanidinium diacetate: synonyms and cross-reactants

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Key words: alkylpropylenediamine-guanidinium diacetate; allergic contact dermatitis, cocospropylenediamine-guanidinium diacetate; N-cocospropylenediamine-ammonium borate; Dodigen 3558; preservatives, antimicrobials, biocides.

Case Report

A doctor's secretary aged 23 gave a few months' history of eczema on the hands and arms, strongly correlated with work. The patient suspected an instrument disinfectant to be the cause, skin contact with this disinfectant (InstruActiv®/ad-Arztbedarf GmbH, Frechen, Germany) taking place several times daily when lifting instruments out of the solution. Due to lack of time, this

was often done with bare hands. After the development of hand eczema, an alternative antiseptic (Dürr System-Hygiene ID 212 forte®/Orochemie Dürr + Pflug GmbH + Co KG, Kornwestheim, Germany) had been introduced, but there was no improvement.

At presentation, she showed erythema and pruritic eczema mainly on the backs of the hands and distal forearms. Patch testing with the standard, ointment and disinfectant series of the German Contact Dermatitis Research Group (DKG) was negative. Furthermore, we tested the routinely used disinfectant, the alternative antiseptic and the preservative cocospropylenediamine-guanidinium diacetate (1).

D2 and D3 readings were positive (+) to both antiseptics (InstruActiv and Dürr System-Hygiene ID 212 forte, 1%, 2% and 5% aq.) and cocospropylenediamine-guanidinium diacetate (0.01% and 0.1% aq.).

Discussion

The disinfectant Dürr System-Hygiene ID 212 forte contains alkylpropylenediamine-guanidinium diacetate, or cocospropylenediamine-guanidinium diacetate (same CAS No., see below), and the alternative product InstruActiv a chemically related preservative (N-cocospropylenedia-

mine-ammonium borate). Because of the overlapping structures of the molecules (Figs 1 and 2), patch testing with N-cocospropylenediamine-ammonium borate was not performed. The patch test results can be explained as a cross-reactivity between alkylpropylenediamine-guanidinium diacetate/cocospropylenediamine-guanidinium diacetate and N-cocospropylenediamine-ammonium borate. The cocosalkyl chain represents the most probable antigenic determinant.

To the best of our knowledge, N-cocospropylenediamine-ammonium borate has not previously been described as sensitizer, though cocospropylenediamine-guanidinium diacetate has (1), even if the chemical name alkylpropylenediamine-guanidinium diacetate is less familiar.

Cocospropylenediamine-guanidinium diacetate/alkylpropylenediamine-guanidinium diacetate (CAS No. 85681-60-3) is increasingly used as a preservative in topical and instrument disinfectants. In total, 83 guanidine derivative-containing antiseptics are listed in the register of the DGHM (Deutsche Gesellschaft für Hygiene und Mikrobiologie), 5 of which are in use at the University Hospital of Graz: Sactimed S® (Unilever), Apesin rapid® (Tana Chemie), Apesin AP3® (Tana Chemie), Biguanid Fläche® (Arcana), and Lysetol AF® (Schülke & Mayr). During the year 2000, 963 L of Biguanid Fläche® (Arcana) was used here.

References

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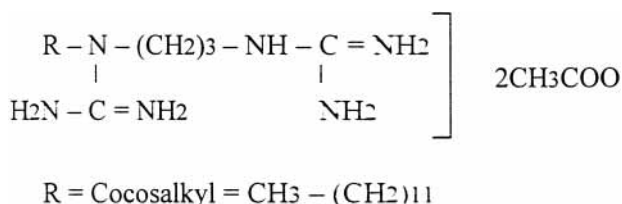


Fig. 1. Alkylpropylenediamine-guanidinium acetate/cocospropylenediamine-guanidinium acetate.

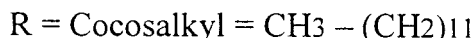
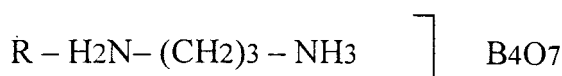


Fig. 2. N-cocospropylenediamine-ammonium borate.