

Allergic contact dermatitis caused by Tinosorb® M

Michael O'Connell¹, Stephen Kirk² and Mark S. Wilkinson¹

¹Department of Dermatology, The General Infirmary, Leeds LS1 3EX, UK and ²Boots Technical Centre, Boots UK Ltd, Nottingham, NG90 5EF, UK

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Correspondence: Dr Michael O'Connell, Department of Dermatology, South Infirmary-Victoria University Hospital, Old Blackrock Road, Cork, Ireland. Tel: 00 353 21 4926100; Fax: 00 353 21 4926405. E-mail: mickoconnell@doctors.net.uk

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Despite the increased use of UV filters, photoallergic reactions remain relatively rare. We describe two cases of allergic contact dermatitis caused by Tinosorb® M. The active constituent is methylene bis-benzotriazolyl tetramethylbutylphenol (INCI; CAS 103597-45-1), but it also contains propylene glycol, xanthan gum, water, and the surfactant decyl glucoside.

Table 1. Summary of positive patch test reactions

	Allergen	Concentration	D2	D4
Case 1	Colophonium	20% pet.	—	+
	Formaldehyde	1% aqua	+	++
	DMDM hydantoin	2% aqua	+	+
	Methylene bis-oxazolidine	1% pet.	+	+
	Methylchloroisothiazolinone/ methylisothiazolinone	0.02% aqua	++	++
	Fragrance mix II	14% pet.	++	+
	Octocrylene	10% pet.	+	+
Case 2	Tinosorb® M	10% pet.	+	+
	2-Bromo-2-nitropropane- 1,3-diol	0.5% pet.	+	+
	Lauryl glucoside	3% pet.	+	+
	Tinosorb® M	10% pet.	+	+

Case Reports

Case 1

A 75-year-old non-atopic male presented with an eczematous eruption occurring 1–2 days after the application of sunscreen. The patient was patch tested with a British baseline, facial, textile and plant series, together with photopatch tests. The allergens were tested with Finn Chambers® (Epitest Ltd Oy, Tuusula, Finland) mounted on Scanpor® tape (Actavis Norway AS, Norgesplaster, Vennesla, Norway) tape, and removed after 2 days. The readings (D2 and D4) were performed according to International Contact Dermatitis Research Group criteria (Table 1).

A duplicate photopatch series testing (Chemotechnique Diagnostics, Vellinge, Sweden) was performed in association with testing of the patient's own sunscreen products. A sunscreen product used by the patient containing Tinosorb® M did provoke an allergic response, confirming the clinical relevance of the positive Tinosorb® M patch test finding. The clinical responses to the irradiated (5 J/cm²) and non-irradiated photopatch series were identical at D2 and D4.

Case 2

An 85-year-old female presented with a 13-year history of eczematous changes largely distributed on the face, neck, and arms. The patient was patch tested with a British baseline, facial and plant series together with photopatch tests as outlined above (Table 1). Positive reactions to Tinosorb® M were identified in both the

irradiated and non-irradiated test series. No positive reactions to Tinosorb® M were identified in (n = 20) control patients.

Discussion

Tinosorb® M is an organic UV filter that exhibits strong absorbance within the 300–400-nm region. It is marketed by Ciba®, who filed for a patent in 1998, and it is now widely used in cosmetics.

Case 1, in addition to showing allergy to Tinosorb® M, showed multiple contact allergies. Therefore, the purity of Tinosorb® M was checked with the supplier, who confirmed that it was 99% pure and preservative-free. Although it is labelled as methylene bis-benzotriazolyl tetramethylbutylphenol by the supplier, it is the commercially blended product Tinosorb® M that is supplied. Tinosorb® M contains methylene bis-benzotriazolyl tetramethylbutylphenol as the active constituent, and this is dispersed in the aqueous phase of an emulsion and stabilized with decyl glucoside.

There have been two reports of contact allergy to decyl glucoside in patients who tested positive with Tinosorb® M (1, 2). This surfactant represents a hidden allergen in sunscreen preparations containing Tinosorb® M. Case 2 showed a positive reaction to a glucoside in association with Tinosorb® M, in keeping with the Tinosorb® M response being secondary to glucoside sensitization. Interestingly, a new dispersion of methylene bis-benzotriazolyl tetramethylbutylphenol (Tinosorb® M-PGL) does not contain glucosides, and may be tolerated in glucoside-sensitized individuals.

In contrast, case 1 showed no positive reaction to lauryl glucoside. Glucoside sensitization appears to be a group allergy reaction, with cross-reactions between different glucosides representing the norm (1). Therefore, a positive allergic contact reaction to Tinosorb® M and negative glucoside patch test result would be consistent with a reaction to methylene bis-benzotriazolyl tetramethylbutylphenol alone. However, this is unlikely, and concomitant testing with decyl glucoside would also be required before any definitive conclusions on methylene bis-benzotriazolyl tetramethylbutylphenol sensitivity in this individual could be drawn.

In conclusion, this report further expands the number of cases of allergic contact reactions to Tinosorb® M. In keeping with previous reports, the reaction is probably secondary to glucoside sensitivity.

References

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