

5. Ak AT, Alpoz AR, Bayraktar O, Ertugrul F. Monomer release from resin based dental materials cured with LED and halogen lights. *Eur J Dent.* 2010;04(01):34-40. doi:10.1055/s-0039-1697806
6. Sauder MB, Pratt MD. Acrylate systemic contact dermatitis. *Dermatitis.* 2015;26(5):235-238. doi:10.1097/DER.000000000000136
7. Kjeldsen EW, Havmose M, Ahrensboell-Friis U, Thyssen JP, Zachariae C. Palmar eczema from secondary 2-hydroxyethyl methacrylate exposure – the artificial nail grip sign. *Dermatitis.* 2020;31(4):E26-E27. doi:10.1097/DER.0000000000000630

**How to cite this article:** Havmose M, Blomberg M, Zachariae C, Johansen JD. Local and systemic contact dermatitis elicited by dental plastic fillings in a patient allergic to 2-hydroxyethyl methacrylate. *Contact Dermatitis.* 2022; 87(1):106-108. doi:10.1111/cod.14111

# Allergic contact dermatitis caused by dimethicodiethylbenzalmalonate (polysilicone-15, Parsol SLX) and bis-ethylhexyloxyphenol methoxyphenyl triazine (Tinosorb S) in sunscreen cream

Kayoko Suzuki<sup>1,2,3</sup> | Kyoko Futamura<sup>1,2</sup> | Mariko Sugiyama<sup>3,4</sup> |  
Kayoko Matsunaga<sup>3,4</sup> | Akiko Yagami<sup>1,2,3</sup>

<sup>1</sup>Department of Allergology, Fujita Health University School of Medicine, Nagoya, Aichi, Japan

<sup>2</sup>General Allergy Center, Fujita Health University, Nagoya, Aichi, Japan

<sup>3</sup>Association of Skin Safety Case Information Network (SSCI-Net), Nagoya, Aichi, Japan

<sup>4</sup>Department of Integrative Medical Science for Allergic Disease, Fujita Health University School of Medicine, Nagoya, Aichi, Japan

## Correspondence

Dr. Kayoko Suzuki, Department of Allergology, Fujita Health University School of Medicine, 3-6-10 Otobashi, Nakagawa-ku, Nagoya 454-8509, Japan.

Email: [kayokos@fujita-hu.ac.jp](mailto:kayokos@fujita-hu.ac.jp)

**KEYWORDS:** bis-ethylhexyloxyphenol methoxyphenyl triazine, CAS no. 187393-00-6, CAS no. 207574-74-1, case report, Parsol SLX, patch testing, polysilicone-15, Tinosorb S

## CASE REPORT

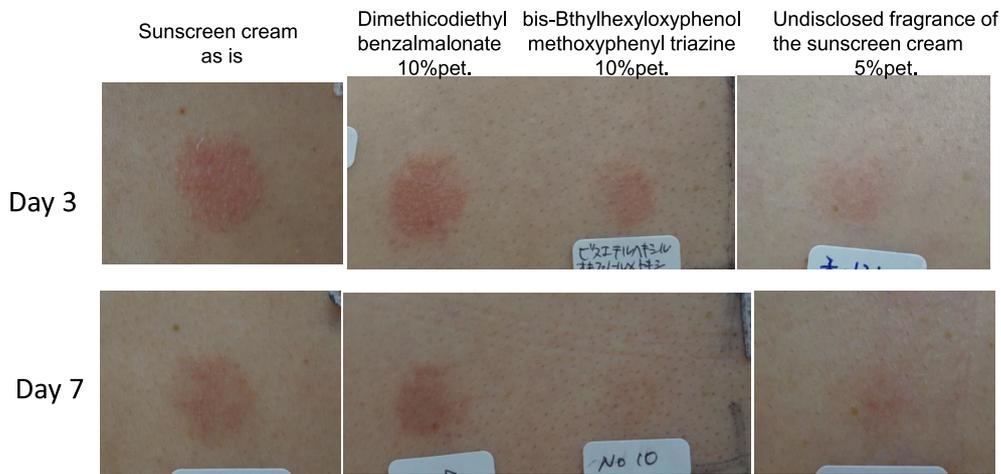
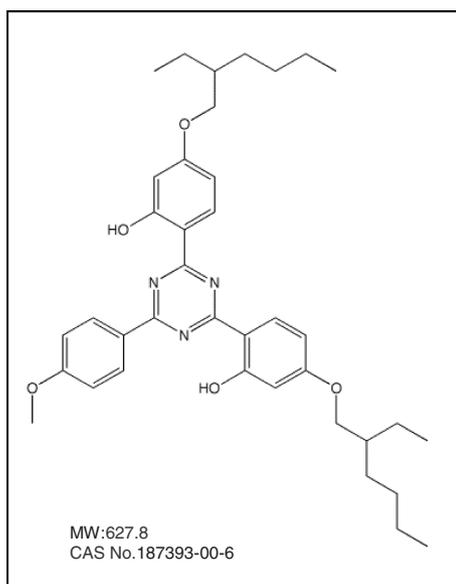
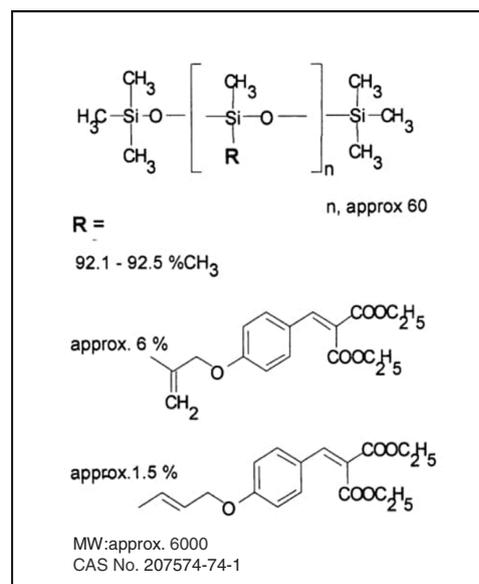
A 51-year-old woman without atopic dermatitis presented with erythema and scales on her face, which had been lasting for 3 months.

Protopical ointment 0.1% (Maruho Co. Ltd., Osaka, Japan) did not improve the symptoms. Therefore, we performed patch tests (on the upper back with 48-hour occlusion) with her cosmetics, Japanese baseline series,<sup>1</sup> and several cosmetic allergens using Finn Chambers on Scanpor Tape (Smart Practice, Phoenix, Arizona). We interpreted each reaction based on the ICDRG criteria<sup>2</sup> on day (D) 2, D3, and D7. A positive reaction was diagnosed if + or a stronger reaction was observed on D3 or D7. The reactions on D2, D3, and D7 were as follows: patient's sunscreen cream "as is" (+, +, +), nickel sulfate (+, +, +), mercaptobenzothiazole (–, –, +), and thiuram mix (–, +, +), respectively. In the patch testing of the sunscreen cream's ingredients, which were provided by the manufacturer, she positively reacted to dimethicodiethylbenzalmalonate (INCI: polysilicone-15; CAS: 207574-74-1; trade name: Parsol SLX) 10% pet. (+, +, +), bis-ethylhexyloxyphenol

methoxyphenyl triazine (BEMT; CAS: 187393-00-6; trade name: Tinosorb S) 10% pet. (+, +, +), and an undisclosed fragrance 5% pet. (?+, +, ?+; Figure 1). In subsequent repeated open application tests, she developed positive reactions to dimethicodiethylbenzalmalonate and BEMT, and no reaction to the fragrance. Therefore, dimethicodiethylbenzalmalonate and BEMT were the culprit chemicals.

## DISCUSSION

Dimethicodiethylbenzalmalonate and BEMT have been widely used in cosmetics as ultraviolet (UV) filters. Dimethicodiethylbenzalmalonate (UVB filter agent with maximum absorption wavelength at 312 nm) is a polysilicon derivative. The molecular weight of dimethicodiethylbenzalmalonate is approximately 6000 Da, making transdermal absorption difficult.<sup>3</sup> Nevertheless, dimethicodiethylbenzalmalonate-induced allergic contact dermatitis has been previously reported.<sup>4,5</sup> The UV absorption spectrum

**FIGURE 1** Patch test findings on days 3 and 7**FIGURE 2** The chemical structures of dimethicodiethylbenzalmalonate (INCI: polysilicone-15; CAS: 207574-74-1; Parsol SLX) and bis-ethylhexyloxyphenol methoxyphenyl triazine (CAS: 187393-00-6; Tinosorb S). MW, molecular weightbis-Ethylhexyloxyphenol methoxyphenyl triazine  
INCI: bis-ethylhexyloxyphenol methoxyphenyl triazine  
CAS Number: 187393-00-6  
Trade name: Tinosorb SDimethicodiethylbenzalmalonate  
INCI: Polysilicone-15  
CAS Number: 207574-74-1  
Trade name: Parsol SLX

of BEMT peaks at two wavelengths (310 and 340 nm), making it a UVA-UVB filter agent.<sup>6</sup> There is only one reported case of BEMT-induced allergic contact dermatitis.<sup>7</sup> Although the Japanese regulations permit up to 3% of BEMT in cosmetics, the European Commission regulations permit up to 10% of BEMT.<sup>8</sup>

Our patient reacted to both chemicals in the patch test without prior UV irradiation. Notably, the chemical structures of these compounds (Figure 2) do not suggest cross-reactivity. We report the first case of combined allergic contact dermatitis to the rare allergens dimethicodiethylbenzalmalonate and BEMT.

#### CONFLICTS OF INTEREST

K.M. is an endowed chair of Hoyu Co., Ltd. The other authors have no conflicts of interest to declare.

#### ORCID

Kayoko Suzuki <https://orcid.org/0000-0001-8367-1034>  
Kyoko Futamura <https://orcid.org/0000-0003-4635-9716>  
Kayoko Matsunaga <https://orcid.org/0000-0001-5096-3006>  
Akiko Yagami <https://orcid.org/0000-0003-3086-5454>

#### REFERENCES

- Ito A, Suzuki K, Matsunaga K, et al. Patch testing with the Japanese baseline series 2015: a 4-year experience. *Contact Dermatitis*. 2022; 86(3):189-195.
- Fregert S. *Manual of contact dermatitis: On behalf of the international contact dermatitis research group*. 2nd ed. Copenhagen: Munksgaard; Year Book Medical Publisher; 1981:76.
- Fujioka K. The latest approved UV filter for personal care. *Oleoscience*. 2007;7(9):357-362. (In Japanese).

- Sarre ME, Guérin-Morea M, Lepoittevin JP, Martin L, Avenel-Audran M. Allergic contact cheilitis caused by polysilicone-15 (Parsol® SLX) in a lipcare balm. *Contact Dermatitis*. 2014;70(2):119-121.
- Hiratsuka R, Hisaoka H, Sekine M. A case of allergic contact dermatitis caused by polysilicone-15 in a sunscreen cream. *Practical Dermatology*. 2017;39(7):723-726. (In Japanese).
- Chatelain E, Gabard B. Photostabilization of butyl methoxydibenzoylmethane (Avobenzone) and ethylhexyl methoxycinnamate by bis-ethylhexyloxyphenol methoxyphenyl triazine (Tinosorb S), a new UV broadband filter. *Photochem Photobiol*. 2001;74(3):401-406.
- Luna-Bastante L, Gatica-Ortega ME, Pastor-Nieto MA, et al. Allergic contact dermatitis to Tinosorb S, *Scutellaria baicalensis*, and other emerging allergens in cosmetics. *Contact Dermatitis*. 2020;82(5):307-309.
- European Commission. Twenty-fourth commission directive 2000/6/EC of February 29, 2000 adapting to technical progress annexes II, III, VI

and VII to council directive 76/768/EEC on the approximation of the laws of the member states relating to cosmetic products (text with EEA relevance). *Off J Eur Union*. 2000;56:42-46.

**How to cite this article:** Suzuki K, Futamura K, Sugiyama M, Matsunaga K, Yagami A. Allergic contact dermatitis caused by dimethicodiethylbenzalmalonate (polysilicone-15, Parsol SLX) and bis-ethylhexyloxyphenol methoxyphenyl triazine (Tinosorb S) in sunscreen cream. *Contact Dermatitis*. 2022; 87(1):108-110. doi:10.1111/cod.14112

# Oleoyl tyrosine: An emerging allergen in tan-enhancing sunscreens and cosmetics

Charlotte De Fré | Ella Dendooven | Olivier Aerts 

Department of Dermatology, University Hospital Antwerp (UZA) and Research group Immunology, INFLA-MED Centre of Excellence, University of Antwerp, Antwerp, Belgium

## Correspondence

Professor Olivier Aerts, Department of Dermatology, University Hospital of Antwerp (UZA), Drie Eikenstraat 655, B-2650 Antwerp, Belgium.

Email: [olivier.aerts@uza.be](mailto:olivier.aerts@uza.be)

**KEYWORDS:** allergic contact dermatitis, amino acid alkyl amides, CAS no. 147732-57-8, case report, cosmetics, oleoyl tyrosine, tan-enhancing cosmetics

We report a second case of severe allergic contact dermatitis (ACD) from oleoyl tyrosine (CAS no. 147732-57-8), an amino acid alkyl amide (AAAA).<sup>1,2</sup>

## CASE REPORT

A 43-year-old female was referred because of suspected (photo-) ACD from a sunscreen or after-sun product (Monoï de Tahiti - Corine de Farme, Neuville-en-Ferrain, France). The patient had used both sun care products in the past without incident. However, during a recent vacation, she had re-applied the same sunscreen and, following sunburn of the face, she applied the same after-sun product. A few days later, a pruritic, erythematous and strongly edematous dermatitis occurred (Figure 1A). Following treatment with topical corticosteroids, patch tests were performed with the Belgian baseline, cosmetic and photo-patch series (Chemotechnique Diagnostics, Vellinge, Sweden), including the after-sun product (Figure 1B) and the sunscreen (tested “as is”). All tests were mounted on AllergEAZE test chambers (SmarPractice, Calgary, Canada) and following occlusion of 2 days, one of two identical photo-patch series was irradiated with UVA 5J. On day (D) 2, D3, and D7

equally strong (++) positive patch and photo-patch test reactions were seen only to the after-sun product (Figure 1C). As this cosmetic contained oleoyl tyrosine as a highly ranked ingredient (no. 8/35 ingredients), we performed an additional patch test to it (1% pet., kindly obtained from Bioderma/NAOS (Braine l'Alleud, Belgium), which resulted in a ++ reaction on D3 (Figure 1D).

## DISCUSSION

Oleoyl tyrosine has recently been identified as a culprit contact allergen in a tan-enhancing sunscreen,<sup>1</sup> and its potential importance as a novel skin sensitizer was highlighted in a recent review.<sup>2</sup> In 2000, two Belgian patients were reported with ACD from a “supertanner” cream containing a mixture of butylene glycol, oleoyl tyrosine, and oleic acid with the former being identified as the likely culprit sensitizer; oleoyl tyrosine was not tested at the time, however.<sup>3</sup> We here confirm the skin-sensitizing capacity of oleoyl tyrosine, a potentially emerging cosmetic sensitizer, particularly in tan-enhancing cosmetics such as sunscreens, “supertanners,” and after-sun products. Oleoyl tyrosine,