

# ACTAS Derma-Sifiliográficas

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## CASE AND RESEARCH LETTERS

### Contact Dermatitis Due to Methylchloroisothiazolinone/Methylisothiazolinone (Kathon CG) as a Contaminant in the Manufacturing Process of a Cream<sup>☆</sup>

#### Eccema de contacto por metilcloroisotiazolinona/metilisotiazolinona (Kathon CG) como contaminante del proceso de fabricación de una crema

##### To the Editor:

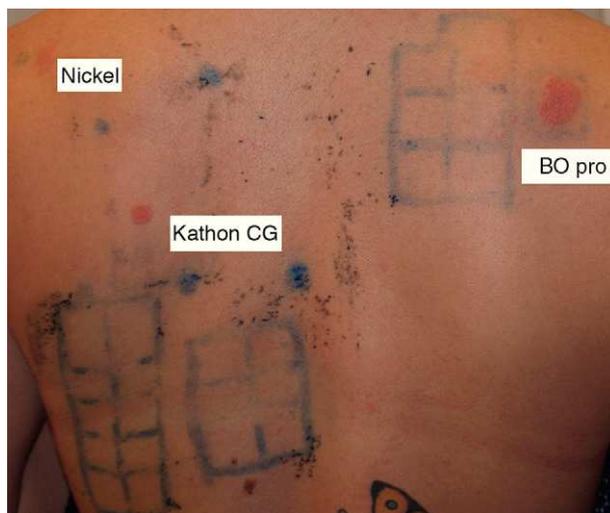
Kathon CG (Cosmetic Grade) is a mixture of methylisothiazolinone (1.125%), methylchloroisothiazolinone (0.375%), magnesium nitrate and magnesium chloride (23%), and water (75%).<sup>1-4</sup> Isothiazolinones are heterocyclic compounds used as biocides because of their antimicrobial properties against gram-positive and gram-negative bacteria, fungi, and algae.<sup>1-4</sup>

Kathon CG is used in a wide range of cosmetics and hygiene and personal care products in maximum permissible concentrations of 7.5 ppm (stay-on products) and 15 ppm (rinse-off products).<sup>1,4</sup> It is also used in industry, where the concentrations can be higher.<sup>4</sup>

Kathon CG was included as an allergen in the standard series in the 1980s at a concentration of 100 ppm and is still one of the most common allergens in both the workplace and the home.<sup>1,4-8</sup>

We report the case of a 30-year-old woman with a personal and family history of atopic dermatitis and respiratory allergy who presented with acute eczema on both hands after contact with a neutral massage cream (+BO pro, Telic, S.A.) that she used in her work as a physiotherapist. The cream contains water, liquid paraffin, petrolatum, stearic acid, cetyl alcohol, ceteth-25, PEG-8 stearate, benzyl alcohol, cetareth-12, fragrance, methylparaben, propylparaben, triethanolamine, and diazolidinyl urea.

With a presumptive diagnosis of allergic contact dermatitis, we performed patch tests with a Spanish Group for Research Into Contact Dermatitis and Skin Allergies (GEIDAC)



**Figure 1** Positive patch test to nickel sulfate, Kathon CG, and the product itself at 96 h.

standard series, a Martí Tor cosmetics series and the product itself. Readings at 48 h, 96 h, and 7 days revealed sensitization to nickel sulfate (++) with past relevance, Kathon CG (+++) with unknown relevance, and the product itself (+++) with present relevance (Fig. 1).

We contacted the manufacturer, who confirmed that Kathon CG is not present in the finished product, nor is it used in the manufacture of the starting materials of which the cream is composed. We requested the components separately, which showed negative results in the patch tests at 48 h, 96 h, and 7 days.

The patient was asked whether the cream could have been mixed or contaminated with another substance or manipulated by another worker. She assured us that she herself had unsealed the container and applied the product with washed hands and that the eczema had appeared a few hours later.

To rule out the possibility that the product had been adulterated and was an irritant, controls were carried out on 10 volunteers, with negative results at 96 h in all cases.

On suspicion that the product could contain methylchloroisothiazolinone/methylisothiazolinone, we contacted the manufacturer, who investigated other possible sources of contact and thus discovered the curious way in which small amounts of this biocide had contaminated the product.

The mixer, the metering pump, and the pipes of the packaging machine are cleaned and disinfected after each

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production run with hydrogen peroxide and rinsed with deionized water. As moisture may remain in the less accessible points of the system (bends and filters), Kathon CG is added to the rinse water to ensure a completely sterile process.

As a result of this finding, the company marketing the cream compensated the patient and changed the procedure for cleaning the machinery, replacing the Kathon CG in the rinse water with other biocides (methylparaben, propylparaben, and diazolidinyl urea).

We believe that the very small amount of methylchloroisothiazolinone/methylisothiazolinone that may be contained in the finished product is due to contamination. The rinse water which is used to clean the packaging machine contains Kathon CG and may briefly come into contact with the cream, especially in the first few bottles of the production run. Although it would have been advisable to determine the presence of Kathon CG in the content of the bottle used by the patient, it was not possible to do so because of the technical difficulty involved.

The patient's atopic predisposition and her work, in which she uses the cream daily, probably accentuated the problem and caused the severe acute dermatitis.

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## Transient Myeloproliferative Syndrome Associated With Down Syndrome<sup>☆</sup>

### Síndrome mieloproliferativo transitorio asociado a síndrome de Down

*To the Editor:*

Transient myeloproliferative syndrome (TMPS) is a usually self-limiting hematologic syndrome characterized by the proliferation of myeloblasts in peripheral blood and bone marrow; it affects neonates with Down syndrome. It may be associated with skin lesions and so differential diagnosis with other vesiculopustular rashes may be required.

We report the case of a full-term baby girl with Down syndrome and a vesiculopustular rash located predominantly on the face, with lesions distributed unevenly on the face, scalp, and torso (Fig. 1). No prenatal tests were performed until the second half of the pregnancy, when ultrasound revealed mild heart abnormalities. Down syndrome was confirmed by karyotype in the first week of life. Tests carried out in the first week of life showed the following results: hemoglobin, 22.7 g/dL; platelets, 46 000/ $\mu$ L; and

leukocytes, 49 000/ $\mu$ L, with 28% blasts in blood. Cultures for bacteria, fungi, and viruses were negative. A smear of one of the pustules showed intermediate mature granulocytic elements and some blasts. The bone marrow showed no signs of leukemia. A skin biopsy revealed a subcorneal vesicular pustule filled with polymorphonuclear leukocytes and epidermal exocytosis (Fig. 2). Both the blood and skin abnormalities resolved spontaneously in the first weeks of life.

TMPS associated with Down syndrome is a self-limiting condition that presents with blasts in the peripheral blood, erythrocytosis, thrombopenia, and coagulation disorders.<sup>1</sup> It may or may not cause skin lesions, which consist of vesicular pustules initially grouped on the head and later extending to the torso; these lesions may present the Koebner response and appear in areas susceptible to rubbing or pressure. Pathogenesis involves mutations of the *GATA-1* gene.<sup>2</sup> The differential diagnosis should include diseases that present vesicular-pustular rashes in neonates<sup>3</sup> (Table 1), whether infectious, such as congenital candidiasis, impetigo, scabies, scalded skin syndrome, or herpes, or noninfectious, such as miliaria, toxic erythema, transient neonatal pustular melanosis, neonatal acne, blistering autoimmune diseases, epidermolysis bullosa, urticaria pigmentosa, or incontinentia pigmenti. In general, no treatment is required, other than support measures and follow-up, owing to the increased risk of developing acute leukemia in the first years of life<sup>1-3</sup>; however, chemotherapy drugs such as cytosine ara-

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