

Title: Occupational allergic contact dermatitis to Isobornyl acrylate present in cell phone screen protectors.

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Occupational allergic contact dermatitis to Isobornyl acrylate present in cell phone screen protectors

Isobornyl acrylate (IBOA), is a photopolymerizable acrylate monomer that is used in various industrial products such as UV-cured coatings, sealants, glues, adhesives, paints, and inks^{1,2}. We herein report a case of occupational allergic contact dermatitis (ACD) to IBOA.

Case report:

A 26-year-old woman presented with a 12-month history of intermittent hand dermatitis. Physical examination revealed desquamation and erythema of the first three fingertips of both hands (Fig.1 A,B). She had been working at a mobile phone repair business for 2 years. She related the start of her dermatitis to the application of “UV tempered glass” screen protectors to curved cell phones (Fig.2). The procedure consisted in placing a tempered glass on top of an UV-cured glue composed of polyurethane and isobornyl acrylate.

The patient was patch tested with the Spanish Contact Dermatitis Research Group (GEIDAC) baseline series in terms of the TRUE Test[®], supplemented with allergens from Chemotechnique. Also, an acrylate series (Allergeaze), isocyanates series (Allergeaze) and IBOA 0,1% petrolatum (Chemotechnique) were tested; they were applied on Curatest[®] strips and fixed on the back with CPK ROLL FIX[®] adhesive tape. Readings were done on days 2 and 4, obtaining a positive (++) reaction to IBOA at day 4. Complete resolution of the lesions was achieved upon avoidance of contact with the glue. Hence, occupational ACD to IBOA contained in the acrylic glue was diagnosed.

Discussion:

According to the Product Safety Data Sheet, IBOA is primarily a skin irritant, but not a significant sensitizer³. IBOA has received the title of “Contact Allergen of the Year 2020” by the American Contact Dermatitis Society due to increasing reports of sensitization to it in users of insulin pumps and glucose sensors⁴⁻⁶.

IBOA has been repeatedly identified in high concentrations (>60%) as a component of different work-related, UV-cured acrylic glues. However, it remains an extremely rare cause of occupational ACD^{1,7}.

We report a relevant case of occupational ACD to IBOA in a patient who applied UV-cured screen protectors at her work. In the past few years, the emergence of new designs of high-tech electronic devices such as curved cell phones, has resulted in the development of new ways of protecting their screens. UV-cured screen protectors have a curved design that covers the screen completely and attachment is secured with UV-cured glue. IBOA provides toughness combined with flexibility and resistance to impacts that make it ideal for protection of mobile devices³. This type of screen protection is available in specialized shops and through online shopping. Therefore, growing usage of this method by professionals and individuals could lead to an increase in sensitization to IBOA.

Conclusion:

IBOA can be expected to be an emerging contact allergen in cell phone maintenance and repair professionals. Knowledge of new IBOA uses will contribute to accurate and early diagnosis of this occupational ACD by clinicians.

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Figure legends:

Figure 1 (A, B): A. Pulpitis on the first finger of the left hand; B. Pulpitis on the second finger of the right hand.

Figure 2: UV tempered glass. Commercialized kit containing an acrylic glue, which is applied on top of the cell phone screen; a tempered glass with curved borders, which is applied on top of the acrylic glue; and a UV light used to dry the glue.



