

EVALUATION OF THE ALLERGENICITY OF TWO METHACRYLATE BASED SELF-HARDENING ACRYLIC SEALERS

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Two industrial sealing agents based on methyl methacrylate were evaluated for their allergenic potential. Clinical examination of the 20 employees of the firm exposed to the agents for 1 month to 5 years, did not reveal any evidence of contact dermatitis. Patch tests with the sealing agents on 56 volunteers including 12 employees were also negative in all.

Key words : Methyl methacrylate, Acrylic, Contact dermatitis, Sealers.

Acrylic resins are being increasingly used for medical and industrial purposes. In medicine, these are used for the manufacture of dental plates, surgical prostheses, contact lenses, artificial nails and nasal filters, while in industry, their chief use comprises of as sealers for metals, rubber and wood. Methyl methacrylate is the most commonly used acrylic and the process consists of polymerisation of the monomer into the polymer form, polymethyl methacrylate. The completely polymerised form is considered to be non-allergenic, though cases of contact dermatitis due to the acrylic resin have been reported from time to time.¹⁻⁶ Majority of these cases have been attributed to the monomer, methyl methacrylate which might remain in an incompletely polymerised product. We were requested to evaluate the allergic potential of two methyl methacrylate based self-hardening sealing agents being marketed in India.

Materials and Methods

The two sealing agents supplied were Maxseal PS and Permaloc TP. Two methods were used for the evaluation. (1) Patch tests were done on 60 male volunteers which included 12 employees of the firm and thus were exposed to the agents for periods from 1 month to 5 years. Each volunteer was tested by the standard occluded patch test and also by the

open patch test method with each of the sealing agents. The results of the patch tests were read after 48 hours. (2) Twenty employees of the organisation who were actually exposed to the agents for periods varying from 1 month to 5 years were clinically examined for any evidence of contact dermatitis.

Results

Four volunteers did not report for the reading of the patch test results, thus the results were read only on 56 volunteers. None of the volunteers showed any positive reaction to either of the agents. None of the employees examined clinically, had any evidence of contact dermatitis.

Comments

The practice of evaluating the allergenic potential of industrial chemicals before these are released in the market for mass usage, is not common in India. This trend however, is very welcome and necessary because in this manner, it is possible to prevent highly allergenic chemicals from being released for mass usage.

A variety of tests have been proposed for this purpose from time to time. Recently, the Indian Standards Institute⁷ (ISI) has proposed certain tests for evaluating the dermatological safety of cosmetics and the same tests can be applied to industrial chemicals as well. In case nothing is known about the irritant or allergenic potential of the chemical/product, it has been recommended to perform the test

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for irritant potential, repeated-insult test, prophetic patch test, test for sensitizing potential, provocative patch tests, use test and restricted consumer release test, in that order. But, depending upon the information already available, several of these tests can be omitted.

In our study therefore, it was decided to perform the prophetic patch tests in 50 volunteers and also to look for any evidence of dermatitis in the individuals who were exposed to the chemicals (somewhat like the use test). Negative findings by both the tests do not exclude the possibility of some worker or a user developing contact dermatitis from these sealers in future, but the incidence of such cases is likely to be extremely low. At any rate, these agents do not have an irritant potential.

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