

Occupational allergic contact dermatitis from 2-tert-butylamino-4-cyclopropylamino-6-methylthio-1,3,5-triazine

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Allergic contact dermatitis from triazine derivatives has occasionally been reported (1, 2). The preservative 1,3,5-tris(hydroxyethyl) hexahydrotriazine (Grotan BK) is probably the best known triazine contact sensitizer (3, 4). Among triazine biocides reported as contact sensitizers are anilazine (5), aminotriazole (6), and atrazine (7).

In Sweden, the algicide 2-tert-butylamino-4-cyclopropylamino-6-methylthio-1,3,5-triazine (Irgarol 1051, Ciba Geigy, CAS 28159-98-0) is used in certain maritime paints to prevent growth of marine organisms on boats in waters of the Baltic Sea and Kattegat. The content of Irgarol 1051 in these paints varies between 2.5% and about 6%. On a worldwide basis, an estimated $40 \cdot 10^6$ l of paint containing Irgarol 1051 have been produced (data from Ciba Geigy, Switzerland). Irgarol 1051 was first introduced in Sweden in 1990. The amount sold there in 1995 was 4500 kg (data from National Chemicals Inspectorate, Sweden). In predictive guinea pig maximization testing, the substance has been classified as a moderate sensitizer and as a non-irritant (data from Ciba Geigy). No previous reports of human sensitization to 2-tert-butylamino-4-cyclopropylamino-6-methylthio-1,3,5-triazine have been found.

Case Report

A 60-year-old shipyard worker presented with a 2-year history of severe recurrent dermatitis on the face, forearms and hands. His symptoms worsened during the spring when working on painting and polishing boats. He had used antifouling paints for 25 years with no previous skin problems. The patient's eczema cleared in a short time when exposure to the paints was avoided.

Patch testing with the European standard series was negative. He had positive (++) patch test reactions to both of the boat paints from the workplace, 2% MEK, as well as to his contaminated working gloves. Both paints contained 2-tert-butylamino-4-cyclopropylamino-6-methylthio-1,3,5-triazine (Irgarol 1051) and copper thio-cyanate as antifoulants. Further patch testing revealed positive (++) reactions to Irgarol 1051 (supplied by Ciba Geigy) 5%, 2%, 1%, 0.5%, 0.2% and 0.1% in a water suspension. 10 volunteers were patch tested with the same serial dilution of Irgarol 1051 with negative results.

Comment

The patient was probably exposed to Irgarol-containing antifouling paints for 5 years prior to the onset of contact dermatitis. These paints give a hard surface which does not need grinding of the boat hulls prior to repainting. Thus, airborne exposure to wet paint particles during painting seems to have been the prime source of sensitization. The painting is performed outdoors, by means of a brush or roller, to windward to prevent exposure to the paint. This is, however, possible only when painting boats below 5 tons of weight. Face masks are not used.

Based on the absence of reports despite extensive use, 2-tert-butylamino-4-cyclopropyl-amino-6-methylthio-1,3,5-triazine appears to be a weak sensitizer. Exposure to Irgarol-containing boat paints, however, constitutes a risk of developing allergic contact dermatitis. Users should be warned of possible sensitization and precautions should also be taken to prevent airborne exposure.

References

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