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Subject: Allergic contact dermatitis from ethoxyquin in apple packers

In the British Columbia apple packing industry 25 workers developed allergic contact dermatitis of the hands. Apples may be treated with an aqueous solution of ethoxyquin (0.3%) and Tide detergent (0.2%) in order to prevent 'scald' during storage. (Apple scald is a diffuse browning of the skin of apples that affects only the appearance and results mainly from delayed storage, or storage in a green condition. It is a physiological condition of the fruit, but resembles some fungus infections.)

Closed 48 hour patch test results in 25 cases were as follows. All controls were normal.

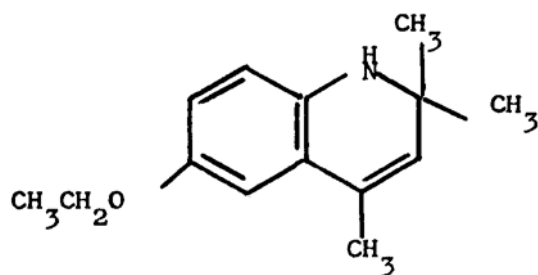
Ethoxyquin (0.5% in water)	++
Tide (0.25% in water)	-

Two methods of application of ethoxyquin to the apples were in use:

1. The apples were dipped in bins containing the solution for 15-30 seconds and then allowed to dry. The maximum permissible ethoxyquin residue on the apples was 3 parts per million. Contact with the apples by sorters and packers was minimal and no cases of dermatitis occurred in workers so exposed.

2. The apples were sprayed during grading. Sorters and packers handled the wet apples. All cases of dermatitis occurred in workers so exposed.

Packing plants in six different localities were visited; Dermatitis only occurred in plants using the spray technique. However, three patients who originally developed dermatitis after contact with wet sprayed apples subsequently had a recurrence of dermatitis after contact with dry dipped apples. Evidently the concentration used for spraying apples was adequate to produce sensitisation whereas the residue on dried, previously dipped, apples was sufficient only to produce dermatitis in already sensitized individuals.



Ethoxyquin

(1,2 - DIHYDRO - 6 - ETHOXY - 2, 2, 4 - TRIMETHYL QUINOLINE)

Cases of dermatitis from ethoxyquin in animal foodstuffs have been noted by Mehlhorn and Beetz (Berufsderm. 1971, 19, 85) and by Zschunke (personal communication).