

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 9 1994

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: OCCUPATIONAL AND RESIDENTIAL EXPOSURE ASSESSMENT FOR
3-(Trimethoxysilyl)propyl dimethyl octadecyl ammonium
chloride AND THE IMPURITIES

FROM: Winston Dang, Chemist
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THRU: Alan P. Nielsen, Chief
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Please find the OREB review of

DP Barcode: D198719

Pesticide Chemical Codes: 107401

Case No.: 3148

EPA Reg. No.: 34292-1, 34292-2

EPA MRID No.: N/A

Review Time: 3 days

PHED: N/A

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Introduction and Background

OREB has been requested by TB I/HED (K. Hamernik) to do a worker exposure assessment to an impurity in 3-(Trimethoxysilyl)propyl dimethyl octadecyl ammonium chloride.

3-(Trimethoxysilyl)propyl dimethyl octadecyl ammonium chloride is an antimicrobial agent (broad spectrum bacteriostat, algicide and fungicide) used on textiles (i.e., human clothing), special industrial products, carpets or upholstery to control the growth of odor causing bacteria, to reduce deterioration and discoloration caused by fungus in the presence of moisture, to control the growth of mold, mildew, etc. This antimicrobial agent can be applied to surfaces as an aqueous solution at a rate of 0.1% to 1.0% by weight of active ingredient by dipping, foam application, preservative treatment, sponging or spraying until uniformly wet.

Action and Exposure Assessment Of Impurity

Based on the information provided by Mike Hales of Dow Corning Midland Michigan (one of the registrants), in Dow Corning 5700 the "impurity" is about [REDACTED]. In Dow Corning 5772 Antimicrobial Agent the "impurity" is about [REDACTED]. Mixing the antimicrobial with water" induces a hydrolysis reaction which converts the methoxy function groups on the active ingredient, and on some of the impurities, to hydroxy groups." Toxicity studies revealed that the impurities may have a potential chronic tox-concern². OREB conducted an exposure estimate of those impurities in the concentrated product (e.g., DC5700 in 49% Methanol) to the mixer/loader, and an exposure estimate to the applicator by the end-use product [REDACTED]

1. Use information is based on the Luis report dated 6/25/91 from Phyllis Johnson of BEAD, and the product labels, EPA Reg. 34292-1 and 34292-2.
2. Tox information was retrieved from the tox one liners dated 12/10/92 and discussion with Karen Hamernik of Toxicology Branch I.
3. The impurity, based on the information from Mike Hales of Dow Corning Midland Michigan (the registrant), [REDACTED]

Manufacturing process information not included.

The exposure of impurity to mixer/loader

Manufacturing process information not included.

Conclusions

The exposure estimate for mixers/loaders who are exposed to the impurity during open pouring is 587.9 ug/kg/day.

cc: Winston Dang/OREB
Chemical File
Circulation
Correspondence