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

OCT 27 1992

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 3-(Trimethoxysilyl)propyl dimethyl octadecyl ammonium chloride, the active ingredient in Dow Corning antimicrobial products: 6(a) 2 data submission

Tox.Chem No.: 892B
MRID No.: 423341-01
DP Barcode: D180838
Submission No.: S422197
PC Code: 107401

From: John C. Redden, Toxicologist 10/21/92
Section 3
Toxicology Branch I
Health Effects Division (H7509C)

To: Velma L. Noble, PM Team 31
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Registration Division (H7505C)

Thru: Karen L. Hamernik, Ph.D. 10/21/92
Acting, Section Head Section 3
Toxicology Branch 1
Health Effects Division (H7509C)

ACTION:

Requested review of 6(a)(2) adverse effect data submission for 3-(Trimethoxysilyl)propyl dimethyl octadecyl ammonium chloride, a.i. of the following antimicrobial products: DC 5700 Antimicrobial Antimicrobial Agent (EPA Reg #34292-1), DC 5772 Antimicrobial Agent (EPA Reg # 34292-2), Sylgard Antimicrobial Treatment (EPA Reg # 34292-3), DC 5700 Antimicrobial Agent for Manufacturing (EPA Reg # 34292-5), and DC 5772 Antimicrobial Agent for Manufacturing (EPA Reg # 34292-6).

CONCLUSIONS:

Toxicology Branch I acknowledges the receipt of the data (MRID 42334101). However, since it is of a preliminary nature, the data cannot be fully evaluated until submission of the final report.

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BACKGROUND:

The submitted information, MRID No. 42334101, is supplemental information to a FIFRA Section 6(a)(2) submission dated February 13, 1992 (MRID No. 422042-01). MRID No. 422042-01 was sent to the Document Processing Desk, OPP, EPA on February 13, 1992. The submission was a notification of adverse effects for an impurity in Dow's antimicrobial agents (Registrant: Dow Corning Corp., Midland Michigan). The submission was not sent to either Toxicology Branch and was only discovered through the current submission (MRID No. 423341-01). It is unclear why this submission was not routed on receipt as 6(a)(2) notification of adverse effects. However, the HED 6(a)(2) Data Submission Coordinator, William Burnam has been informed of the situation. As background for the review of MRID No. 423341-01, this reviewer will summarize the information contained in MRID No. 422042-01.

INERT INGREDIENT INFORMATION IS NOT INCLUDED

Summary of Information contained in MRID No. 422042-01

MRID No. 422042-01 details preliminary results from a 28-day vapor inhalation toxicity study on a chemical substance that is present as an impurity, [redacted] in Dow Corning's antimicrobial products registered by Dow Corning Corporation (Registration Numbers 34292-1, 34292-2, 34292-3, 34292-5, and 34292-6). The substance will be referred to as "The Impurity" to remain consistent with the registrant's terminology. The report was based on preliminary results from a 28-day vapor inhalation toxicity study performed with "The Impurity." The study involved repeated exposure of test animals to 10, 50, 100 and 200 ppm of "The Impurity" for 6 hours per day, 5 days per week. A statistically significant increase in the incidence of micronuclei in bone marrow cells was noted in female rats at 200 ppm (which the registrant stated was equivalent to a total dose of over 5000 mg/kg body weight (calculations not submitted)), but not at lower doses. The author concluded: "it would appear that the impurity may have some potential for genetic activity in an in vivo system."

The products, Registration Numbers 34292-1, 34292-2, 34292-3, 34292-5, and 34292-6, are used in the treatment of textiles and hard surfaces. The antimicrobial is mixed with water and applied by, "dipping, spraying, or other conventional means by certified commercial applicators to achieve 0.1 to 1.0% by weight active ingredients." Mixing the antimicrobial with water, "induces a hydrolysis reaction which converts the methoxy functional groups on the active ingredient, and on some of the impurities, to hydroxy groups."

The registrant concluded:

> "Considering the results from this study, related studies, and the use pattern of the antimicrobial agents, it is

believed that these products should not pose a genetic risk to animals or humans, when used as directed."

Summary of Current Submission MRID No. 423341-01

The Current submission, MRID No. 42334101 dated 5/5/92, is supplemental information to the FIFRA Section 6(a)(2) submission dated February 13, 1992 (MRID No. 422042-01 addressed above). The information in this report documents preliminary data from the histopathologic examination of the above mentioned 28-day vapor inhalation toxicity study. Histopathologic examination revealed compound-related changes in the adrenal glands, kidneys, liver, and urinary bladder in, "some rats from one or more dosage groups." Reported changes included:

> "adrenal cortical hypertrophy, observed in male rats dosed with 100 and 200 ppm of "The Impurity" and in female rats dosed with 200 ppm of "The Impurity". Hyaline droplet nephropathy was observed in male rats dosed with 50 ppm or greater of "The Impurity". Hepatocellular hypertrophy was observed in male rats dosed with 200 ppm of "The Impurity" and hyperplasia of the urinary bladder was observed in male and female rats dosed with 10 ppm or greater of "The Impurity". These histopathologic observations correlated with increased absolute and relative adrenal, liver, and kidney weights. No test material-related microscopic changes were observed in any of the respiratory tract organs or tissues examined."

The registrant stated that, "Hyaline droplet nephropathy is a condition unique to male rats," and that, "Hyperplasia of urinary bladder epithelium suggests the presence of an irritant excreted in the urine."

The registrant further concluded:

> "Also, it is important to emphasize that numerous toxicity studies have been conducted with the registered products and the form of the active ingredient to which animals and humans may be exposed after application of the material to a surface. Considering the use patterns of the pesticide formulations there is no reason to suspect that the tested impurity would be present when the products are used as directed."

Toxicology Branch I concludes that the reported findings, described as preliminary, cannot be fully evaluated until the final report of the study is submitted to the EPA.