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

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MEMORANDUM NOV 12 1982

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

TO: Franklin Gee, Product Manager #17
Registration Division (TS-767)

SUBJECT: EPA Reg. No. 432-487. Mutagenicity Studies in Salmonella typhimurium and in Saccharomyces cerevisiae with Resmethrin.

TOX Chem. No. 83E

Background:

The S. B. Penick Corporation has submitted to EPA mutagenicity data in support of registration for their insecticide Resmethrin (letter of Sept. 17, 1982). This information is reviewed as follows. EPA Accession #248482.

Conclusions:

1. Resmethrin did not show evidence of producing mutagenic activity in the studies presented.

2. Additional mutagenicity studies may be required when EPA policy is formalized.

3. The study submitted as originating at the U. S. Army Environmental Hygiene Agency was in fact the same study conducted by Litton Bionetics (see review). The study conducted by Mayberry and Savage (Am. Soc. Microbiol. 78th Am. Meeting) was in abstract form only and as such could not be evaluated.

4. Because of deficiencies in the Litton Bionetics study (see review) and lack of a full battery including other types of mutagenesis studies, the potential (if any) of Resmethrin to induce mutations has not been adequately investigated with reference to the current state of the art.

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Mutagenicity Evaluation of SBP-1382 Technical Final Report

Litton Bionetics, Inc. #2683, April, 1977.

The potential for Resmethrin (lot and % purity not stated) to induce mutations in Salmonella typhimurium (strains TA-1535, TA-1537, TA-1538, TA-98, and TA-100) and in Saccharomyces cerevisiae (strain D4) was assessed in the presence and absence of metabolic activation (S-9 homogenate). Methylnitrosoguanidine, 2-nitrofluorene and quinacrine mustard were used as positive controls for the non-activation tests. 2-anthramine, 2-acetylaminofluorene and 8-aminoquinoline were used as positive controls for the activation tests.

Results:

Resmethrin was tested over the range of 0.01 to 5.0 ul per plate and did not show evidence of a mutagenic effect. The positive controls gave responses of 4 to 77 times background for the non-activation systems. For the activation systems, the positive controls were only about twice background for strain TA-100 and D4, but for the other strains, the response was 6-34 times background.

Comments:

No mutagenic potential was evident in this study. The rationale for the selection of the dose levels of Resmethrin is not clear. It is also unclear why the dose levels are given a ul per plate rather than ug (or mg) because the test material was described as a yellow wax. This study is also deficient in that at least two and preferably three plates per test should have been run.

Nov. 5, 1982

John Doherty, Ph.D.
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