Memorandum

Date: January 15, 1981

Subject: EPA File Symbol: 464-LAE DURSBAN TC TERMITICIDE CONCENTRATE
Caswell #219AA

From: B. T. Backus
IRB/TSS

To: Mr. Jay Ellenberger
Product Manager 12

Applicant: Dow Chemical U.S.A.
Agricultural Products Dept.
P.O. Box 1706
Midland, MI 48640

Active Ingredients:
Chlorpyrifos.....42.0%
Xylene range aromatic solvent.....9.2%
Inert Ingredients:.....48.8%

Background:

Product is proposed for use in controlling termites at a use dilution of 1:50. Applicant is using the "cite-all" method of support "under protest." Toxicological studies on similar formulations and the use dilution were previously reviewed (B. T. Backus, Jan. 2, 1981, for 464-LAU).

Comments and Recommendations:

1. The study entitled "Evaluation of Airborne Concentrations of Chlorpyrifos, Diethylsulfide (DES), Diethyldisulfide (DEDS), and Tenneco 500/100..." is extremely difficult to evaluate. No information is provided within the report as to the amount of 1% Dursban that was applied at each site, or approximate volume of crawl space (or basement) at each location, which would presumably be factors in concentrations. It is not certain whether each applicator received essentially the same exposure (the initials "K.C." appear only in connection with the second crawl space). Since applicators wore respirators it is difficult to correlate TWA exposure values with any possible change (or lack of it) in cholinesterase activities.

2. The formulation is similar in composition and uses to that registered under EPA Reg. No. 464-464.

3. IRB/TSS would have no objection, on the basis of hazard to humans and domestic animals, to the conditional registration of this product

under the cite-all method of support with the labeling revisions indicated below.

Labeling:

1. The statement: "If irritation persists, get medical attention." should appear as part of the statement of practical treatment for skin exposure.

2. There should be an additional practical treatment statement, something like the following: If Inhaled: Remove to fresh air.

Review:

The following study was received 11-20-80 at EPA. Study is from the Industrial Hygiene Laboratory of Dow Chemical U.S.A. under Laboratory Report Code HEH3.5-5-27(1) date issued December 5, 1979.

Study Title: EVALUATION OF AIRBORNE CONCENTRATIONS OF CHLORPYRIFOS, DIETHYLSULFIDE (DES), DIETHYLDISULFIDE (DEDS) AND TENNECO 500/100, DURING AND AFTER APPLICATION OF DURSBAN EXPERIMENTAL TERMITICIDE FORMULATION #4328 TO DWELLINGS FOR CONTROL OF SUBTERRANEAN TERMITES, ATLANTA, GEORGIA, SEPTEMBER 17-20, 1979.

Procedure: The basements or crawl spaces of five dwellings in Atlanta, GA, were treated with a 1% Dursban formulation. Concentrations of chlorpyrifos and its decomposition products, diethylsulfide and diethyldisulfide were monitored as well as the Tenneco 500/100 during and 24 hrs after application.

The four applicators who treated these five buildings (while apparently wearing respirators) were tested for plasma and red blood cell cholinesterases prior to and after three days of handling and applying the formulation.

Results: Maximum concentrations of chlorpyrifos found in the treated space during application were 0.04 mg/m^3 (2.8 ppb). Airborne concentrations of chlorpyrifos in the living areas of dwellings during application were 0.0003 mg/m^3 - 0.002 mg/m^3; this range was essentially unchanged 24 hrs later in unfurnished dwellings. Maximum DEDS concentration during application was 419 ppb (applicable TWA standard is 1.0 ppm, short-term excursion limit = 3.0 ppm), but maximum value 24 hrs later was 18 ppb. One DES value of 540 ppb was measured on the first floor above a treated basement, but all other measurements were below detection limit. Potential personnel exposures ranged from 0.0004 - 0.08 mg/m^3 during application, but respirators were worn.
No significant depression in serum cholinesterase values was seen; RBC values all went up; three values were well above normal. "No explanation is offered for this."

Study Classification: Core Supplementary Data

Byron T Backus 1/15/81

Byron T. Backus
IRB/TSS

106