5-17-89

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

007188

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: CHLORPYRIFOS: 4-Day Dermal Probe and 21-Day Dermal Toxicity Studies in Fischer 344 Rats - Identification No. 464-404; Record No. 239190; MRID No. 40972801; HED Project No. 9-0759; Caswell No. 219AA.

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THROUGH: Yiannakis M. Ioannou, Ph. D. Y.M. Ioannou 5-17-89
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and

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Acting Branch Chief, HFAS Toxicology Branch (II)
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Registrant: Dow Chemical U.S.A.

Action Requested: Review 4-day dermal probe and 21-day dermal toxicity studies in Fischer 344 rats treated with CHLORPYRIFOS.

Results

The studies were reviewed by Dynamac Corporation. A copy of the Data Evaluation Record (DER) is attached.

4-Day Probe Study: This study was conducted at dermal doses of 0, 1, 10, 100 or 500 mg CHLORPYRIFOS (in corn oil)/kg/day. There were marked dose-related decreases in plasma and RBC cholinesterase levels at the three highest dose levels. There were no apparent treatment related effects on the skin or on any other parameter examined.

21-Day Study: This study was conducted at dermal doses of 0, 0.1, 0.5, 1 or 5 mg CHLORPYRIFOS (in corn oil)/kg/day (5 days/week for a total of 15 applications of 6 hours each). No signs of toxicity (including cholinesterase inhibition) were observed at any dose.

Conclusion

As no signs of systemic or dermal toxicity were observed at any doses in the 21-day rat study, the following are the effect levels:

Toxicity No Observed Effect Level (NOEL) = 5 mg/kg/day (HDT)
Toxicity Lowest Observed Effect Level (LOEL) = 10 mg/kg/day
(based on plasma and RBC cholinesterase inhibition in the 4-day study)

Even though there was no toxic effect observed at doses up to and including 5 mg/kg/day in the 21-day study, the "toxic effects" aspect (as required by the Guidelines) is considered to be fulfilled due to the cholinesterase inhibition observed at 10 mg/kg/day in the 4-day dermal probe study.

This 21-day study is classified Core Supplementary. It may be upgraded if the Registrant's response to the following is acceptable:

The Registrant is requested to provide data concerning the results of homogeneity, concentration and stability of the test article dosing solutions.

Tox Chem No 219 AA (CHLORPYRIFOS) File Last Updated ______ Current Date ______

Study/Lab/Study #/Date	Material	EPA Accession No.	Results: LD50, LC50, PIS, NOEL, LEL	TOX Category	CORE Grade/ Doc. No.
DERMAL: 4-DAY PROBE 21-DAY STUDY SPECIES: RAT DOW CHEMICAL U.S.A. 9/1/88	CHLORPYRIFOS 100%	MRID 40972801	FISCHER 344 RATS 4-DAY: 0, 1, 10, 100 + 500 mg/kg/day 21-DAY: 0, 0.1, 0.5, 1 + 5 mg/kg/day RESULTS 4-DAY: DECREASED PLASMA + RBC CHOLINESTERASE AT 10, 100 + 500 mg/kg/day NO DERMAL OR SYSTEMIC EFFECTS 21-DAY: NO DERMAL, SYSTEMIC OR CHOLINESTERASE EFFECTS NOEL = 5 mg/kg/day (HDT) LOEL = 10 mg/kg/day (BASED ON PLASMA AND RBC CHOLINESTERASE INHIBITION IN THE 4-DAY DERMAL PROBE STUDY)		SUPPLEMENTARY (DATA REQUESTED FOR HOMOGENEITY, CONCENTRATION AND STABILITY)

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