UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

CASWELL FILE

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MEMORANDUM

SUBJECT: Risk Assessment for Mite Arrest

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           Registration Division (H7505C)

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THROUGH: Esther Saito, Acting Chief   *ABK for*
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A revised exposure assessment for the product Mite Arrest
(J. Tice. Exposure Assessment for Mite Arrest. Memorandum to G.
LaRocca. 17 July 1992) has been conducted by OREB. This
assessment supersedes a memo dated 17 March 1992 on the same
subject. A risk assessment based on this new information is
detailed below.

CONCLUSION

o   The HED Peer Review Committee on Carcinogenicity classified
    permethrin as a Group Cq carcinogen; the estimate of unit
    risk, Q_1^*, is 1.8×10^{-2} (mg/kg/day)$^{-1}$.

o   The extra cancer risk to consumers (generally children)
    who use the product in animal cages is estimated at 5×10^{-7}.

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DISCUSSION

The revised exposure assessment from OREB contains the following changes:

(1) A 0.5 oz container of Mite Arrest cotton balls contains 0.037 g active ingredient. (The former memo gave an amount of 2.8 g active ingredient per 0.5 oz container.)

(2) The amount of permethrin migrating to the skin from the cotton balls is assumed to be 4%; this is the amount found to migrate to skin from permethrin-treated cotton battle dress uniforms. (The former memo assumes 100% migration.)

Based on this information, exposure to permethrin is expected to be 0.139 mg/kg/year for a 35 kg child.

<u>Risk characterization.</u> Estimates of the extra cancer risk is calculated from the following equation:

$$\text{Extra risk} = \text{LADD} \times Q_1*$$

where:

$$\text{LADD} = \frac{0.139 \text{ mg/kg/yr}}{365 \text{ days}} \times \frac{70}{70} \times \text{Absorption}$$

Dermal absorption = 7% This is based on (1) a rabbit dermal absorption study where 30 to 70% of permethrin was found to be absorbed, and (2) rabbit skin is 10 to 15 times more permeable than human skin.

and $Q_1* = 1.84 \times 10^{-2}$ (mg/kg/day)$^{-1}$

The extra risk to a child using the permethrin containing Mite Arrest is calculated to be 5×10^{-7}.

cc: M. Copley
J. Doherty
J. Tice