MEMORANDUM

SUBJECT: Risk Assessment for Mite Arrest

TO: Theresa LeMaster/George LaRocca, PM 13 Registration Division (H7505C)

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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

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

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

Risk characterization. Estimates of the extra cancer risk is calculated from the following equation:

\[ \text{Extra risk} = \text{LADD} \times Q_1^* \]

where:

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

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 \[ Q_1^* = 1.84 \times 10^2 (\text{mg/kg/day})^{-1} \]

The extra risk to a child using the permethrin containing Mite Arrest is calculated to be \[ 5 \times 10^7 \].

cc: M. Copley
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