

US EPA ARCHIVE DOCUMENT

Shaughnessy #: 059101

EAB Log-Out Date: DEC 22 1986

To: Dennis Edwards
Product Manager #12
Registration Division (TS-767C)

From: Joseph C. Reinert, Chief
Special Review Section
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

JCR

Attached please find the EAB review of...

Reg./File No.: 49244-1 and 49244-2

Chemical: Chlorpyrifos

Type Product: Insecticide

Product Name: Super IQ Insecticide Coatings

Company Name: Biochemico Dynamic Americas Corporation

Submission Purpose: Applicator exposure protocol

ZBB Code: _____

ACTION CODE: 177

Date In: 12/2/86

EAB # 70124-5

Date Completed: 12/22/86

TAIS (level II) Days

3

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

_____ Benefits and Use Division

Monitoring study requested by EAB: / /

1.0 INTRODUCTION

Biochemico Dynamic Americas Corporation has submitted a protocol for an applicator exposure study in support of their request to amend the registration of two chlorpyrifos products to include indoor use. Super IQ Insecticide Coating APT (Registration Number 49244-1) is a ready-to-use formulation in a spray bottle; Super IQ Insecticide Coating LC (Registration Number 49244-2) may be diluted with up to 5% water and applied with a brush, roller or sprayer. Both products contain 0.90% chlorpyrifos.

Two previous submissions providing air sampling data (22 January 1985 and 7 January 1986) were reviewed by EAB and were considered inadequate for exposure assessment. Additional replicates and dermal exposure measurements for the applicators were required by the reviewer.

2.0 DESCRIPTION OF STUDY

Applicator exposure will be measured during the roller application of chlorpyrifos onto the interior surfaces (excluding ceiling, glass windows, and metal frames) of a room. Approximately 300 ft² are to be treated. Four professional painters will each apply chlorpyrifos once to the same room at 3-7 day intervals.

Dermal exposure (forearms and chest) will be measured using disposable or 100% cotton coveralls; hand exposure will be measured using cotton gloves. No protective clothing is required by either label. Following the exposure period, the coverall and gloves worn by the applicator will be placed in polyethylene bags. Entire gloves, and 450 cm² portions of each forearm and the chest area of the coverall will be extracted with hexane, and the extracts quantified by GC. We note that this method is similar to that described in the World Health Organization protocol (1). Recovery values for laboratory spiked samples will be provided. The sensitivity of the method is 2 ug/100 cm². Field blanks will also be analyzed; field fortified samples were not described in the protocol.

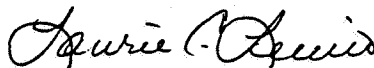
3.0 CONCLUSIONS

Several modifications of this protocol are recommended by EAB. The proposed study is designed to measure dermal exposure to workers applying chlorpyrifos with a paint roller. However, according to label instructions, one product is dispensed from a spray bottle and the other product may be applied as a spray. Exposure resulting from these applications is expected to differ from roller application and needs to be addressed by the registrant.

Dermal exposure measurements for only the chest, forearms and hands will probably not provide reliable data for assessing total dermal exposure resulting from the application methods described in the product labels. Significant head/face exposure is likely to occur during roller or spray applications above chest level, and the use of a head band or hat patch as described in the WHO protocol is recommended. Also detailed in the WHO protocol are procedures for the post-exposure handling of coverall-type dermal sampling garments. It is recommended that immediately after the exposure period, the coverall be sectioned as follows: legs - above and below knee, arms - above and below elbow, and torso - front and back.

A total of four replicates at one site are proposed. The use of four replicates is unacceptable; a minimum of five replicates (for both roller and spray applications) at three representative use sites is required for indoor studies. For specific details regarding the design and conduct of applicator exposure studies, the registrant should refer to the Pesticide Assessment Guidelines, Subdivision U, Applicator Exposure Monitoring.

In addition, respiratory exposure measurements are still needed for both roller and spray applications.



Laurie Lewis
Special Review Section
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

REFERENCES

- 1) World Health Organization. 1986. Field Surveys of Exposure to Pesticides - Standard Protocol. Toxicology Letters. 33:223-235.