

US EPA ARCHIVE DOCUMENT

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Attached, please find the EAB review of:

Reg./File # : 11556-41

Chemical Name : Propoxur

Type Product : Insecticide

Product Name : _____

Company Name : Mobay Corporation

Purpose : Protocol Review for Exposure Study -

Resident Exposure After Crack and Crevice Treatment of Homes

Date Received : 4/8/88 Action Code: 352

Date Completed: _____ EAB #(s): 80645

Monitoring study requested: X Total Reviewing Time: 2 days

Monitoring study voluntarily: _____

Deferrals to: _____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

In December 1987 the Agency issued a Data Call In Notice (DCI) requiring exposure data for several uses of propoxur. Propoxur is an organophosphate insecticide with a number of indoor and outdoor uses around occupied structures in addition to agricultural formulations. Mobay Corporation responded to the DCI with a package containing protocols for seven exposure studies addressing use of products containing this compound (Accession Nos. 219810-219819). The study is designed to measure the potential dermal and respiratory exposure of individuals occupying structures treated with propoxur using hand pressurized equipment.

2.0 DESCRIPTION OF STUDY

2.1 Description of Treatment

Potential dermal and respiratory exposures of residents of homes treated with propoxur will be measured in homes used for an applicator exposure study. The test material, BAYGON 70-WP, will be applied to these homes and three will be selected for indoor exposure monitoring. A 1.1 percent solution of the insecticide will be applied to cracks and crevices using a hand pressurized sprayer. A limited amount of floor space will also be treated according to label instructions.

2.2 Exposure Monitoring

2.2.1 Surface Sampling

Wipe-test samples will be collected from the kitchen, living room, bathroom, one bedroom, and the basement (if any). The floors of these rooms will be sampled. A table top or counter, a ceramic plate, and a metal skillet will also be sampled in the kitchen. Sampling will be conducted on an upholstered chair in the living room and samples will be taken from the bed. Surface and air samples will be taken before treatment, immediately after application, and at intervals of 6, 12, 24, and 48 hours after application. Triplicate samples will be taken of each medium at each sampling interval to estimate variability.

A 30 cm x 30 cm area will be wiped with a moistened cotton gauze pad. The area will be wiped once, in one direction, using firm even pressure. A sheet metal template will be used to assure uniformity of the area sampled. The gauze will be placed in a glass jar and stored on dry ice prior to analysis.

In addition to surface wipe samples, coupons of appropriate materials (5 cm x 5 cm) will be placed on sampling areas before treatment. Three coupons of each surface type will be collected at each sampling interval. The coupons will be extracted with an appropriate solvent and analyzed.

2.2.2 Air Monitoring

Airborne concentrations of propoxur will be measured by drawing air, at a known rate, through collectors using calibrated personal sampling pumps. The sampling media will be located approximately one foot above the floor. Sample rate and volume were not specified but it was stated that the analytical limits of detection would be one tenth of the allowable exposure level. Duplicate samples will be collected at each sampling location to provide backup in case a sample is lost.

2.2.3 Calculation of Transfer Coefficient

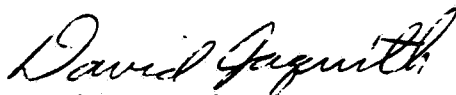
The transfer coefficient correlates residue levels on a treated surface with the amount of material that adheres to the skin after contact with the surface. The amounts obtained from the wipe samples method will be compared to those from wiping the hand over the same sized area of the same medium. Wipe samples will be taken from an area large enough to maximize the amount collected. Similar wipes will be taken with the bare hands of volunteers. These two methods will then be compared to determine the transfer coefficient.

2.4 Analytical Chemistry and Quality Assurance

The solvents to be used for extraction and other analytical procedures were not specified in the protocol. All samples will be shipped and stored on dry ice prior to analysis. Validation of the analytical method be conducted using fortified media at four concentrations that encompass expected propoxur levels in the study. Storage stability samples, covering the longest expected interval between sampling and analysis, will be included. Field validation will be conducted by exposing fortified media for time periods equivalent to those for a sampling replicate. Blank and fortified samples will be included with the study samples to assure that breakdown of the propoxur has not occurred during shipping and storage. These quality assurance samples will make up about ten percent of the total study samples.

4.0 CONCLUSIONS

EAB finds the general design of this study to be acceptable and requires only one change. It was proposed that three houses be monitored for potential post-application exposure. A sample size of three is very small. The variation normally observed with exposure data, which is due to a number of factors, would make interpretations based on so few replicates extremely difficult. In order to produce more statistically reliable estimates of residue and air levels of propoxur in treated homes, the number of homes to be monitored should be increased. The protocol stated that the limits of detection would be one tenth of an unspecified "allowable exposure level". EAB cautions that the analytical methods must be sensitive enough to allow risk assessment for the toxicological concerns associated with this compound and not rely on industrial limits.



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