MRID No. 420197-43

DATA EVALUATION RECORD

1. **CHEMICAL:** Mon 13900, Shaughnessey Number: ~~999999~~ 911596

2. **TEST MATERIAL:** Mon 13900, 96.4% active ingredient, a gray brown powder.

3. **STUDY TYPE:** Acute contact toxicity to the Honey bee *Apis melifera* L.

4. **CITATION:** Winter, Patricia A., Kimberly A. Hoxter, and Gregory J. Smith. 1991. An acute contact toxicity study with the honey bee. Guideline requirement 141-1. Wildlife International Ltd. Project No. 139-264. Submitted by Monsanto Agricultural Company, Performed by Wildlife International Ltd., Easton, Maryland. MRID No. 420197-43.

5. **REVIEWED BY:**

   Renee Lamb
   Biologist
   Ecological Effects Branch (H7507C)
   Environmental Fate & Effects Division

   Signature: Renée Lamb
   Date: 1/15/92

6. **APPROVED BY:**

   Ann Stavola
   Head Section 5
   Ecological Effects Branch (H7507C)
   Environmental Fate & Effects Division

   Signature: Ann Stavola
   Date: 5/28/93

7. **CONCLUSIONS:** This study appears to be scientifically sound and fulfills the data requirements for an acute contact toxicity study with the honey bee. The acute contact LD_{50} value for honey bees exposed to Mon 13900 was determined to be greater than 100 µg a.i./bee, the highest dose tested. The NOEC was 60 µg a.i./bee.

8. **RECOMMENDATIONS:** N/A

9. **BACKGROUND:** N/A

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A

11. **MATERIALS AND METHODS:**

    A. **TEST ANIMALS:** Adult (1 to 2 days old) worker honey bees, *Apis melifera*, obtained from hives maintained at the testing facility were used in this study.

    B. **TEST SYSTEM:** The chambers used in the test were disposable one pint rolled paper containers which measured 87 mm in diameter and 85 mm high. Each one

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was covered with a disposable plastic petri dish (90 mm in diameter) through which a 20 ml glass vial was inserted (containing 50% sugar/water). This was covered with cheesecloth, the food source was available *ad libitum* throughout the test. A sponge was attached to the top of the container which was misted daily to increase humidity.

The photoperiod was maintained at 8 hours of light per day. Ambient room temperatures at the time of observations ranged from 22°C to 23°C. Mean relative humidity was 86%.

C. **DOSAGE**: There were five (nominal) treatment solutions of 13, 22, 36, 60 and 100 μg a.i. per bee. The test compound was dissolved in pesticide grade acetone. The doses were not corrected for purity of the test substance. There was also a solvent and a negative control.

D. **DESIGN**: There were 25 bees per treatment and there were two replicates of each treatment. Test chambers containing 50 or more bees were selected by random draw for dosing. The bees were immobilized using nitrogen and laid out on paper. 25 bees were individually dosed on the thorax and/or abdomen with 2 μl of the test solution using an Eppendorf digital pipette. The negative controls were handled identically to all other bees, but not dosed with any substance. The acetone controls were dosed with acetone only.

Observations were made twice on the day of initiation and once each on day 1 and 2 after dosing.

E. **STATISTICS**: The LD_{50} value was determined by visual inspection of the data.

12. **REPORTED RESULTS**: There was 4% mortality in the negative control and 14% mortality in the solvent control. Three bees in the solvent control were noted as immobile on day 0, but recovered by day 1.

Mortality was 4% and 8% at the 13 and 22 dosages, respectively. Mortality at the 36 and 60 doses was 24% and 16%, respectively. These mortalities were not considered treatment related. All surviving bees in these groups appeared normal throughout the test.

Mortality was 34% at the 100 dose level and may have been treatment related.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES**:

The acute contact LD_{50} value for honey bees exposed to Mon

13900 was determined to be greater than 100 μg a.i./bee, the highest dose tested. The NOEC was 60 μg a.i./bee.

The report has a QA statement signed by a QA officer.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **TEST PROCEDURE:** This test is in accordance with EPA's SEP protocol. Although there was high mortality in the solvent control, since the mortality was low in the treatment groups, this would seem not to affect the results of the study.

B. **STATISTICAL ANALYSIS:** No analysis was required.

C. **DISCUSSION/RESULTS:** This study appears to be scientifically sound and fulfills the data requirements for an acute contact toxicity study with the honey bee. The acute contact LD_{50} value for honey bees exposed to Mon 13900 was determined to be greater than 100 μg a.i./bee, the highest dose tested. The NOEC was 60 μg a.i./bee.

D. **ADEQUACY OF STUDY:**

(1) **CLASSIFICATION:** core

(2) **RATIONALE:** N/A

(3) **REPAIRABILITY:** N/A

15. **COMPLETION OF ONE-LINER:**