Data Evaluation Record

1. Chemical: INF-6025
Benzoic acid, 2-[[[[(4-chloro-6-methoxy-2-pyrimidinyl)-amino] carbonyl] amino] sulfonyl] ethyl ester

2. Test Material: INF-6025 technical, 92.5% purity

3. Study Type: Honey bee acute contact LD_{50}

Species tested: Apis mellifera

4. Study Identification: Meade, A.B. 1984. Acute contact LD_{50} study in honey bees (Apis mellifera L.) with INF6025. Prepared and submitted by E.I. DuPont de Nemours and Co., Wilmington, Delaware. Acc. No. 073110.

5. Review By: Allen W. Vaughan
Entomologist
EEB/HED
Signature: Allen W. Vaughan
Date: 3/12/85

6. Approved By: Norm Cook
Head, Section 2
EEB/HED
Signature: Norman Cook
Date: 3.12.85

7. Conclusions:

This study is scientifically sound. With a 48-hour LD_{50} greater than 12.5 micrograms per bee. INF-6025 is considered "practically non-toxic" to honey bees.

This study fulfills the guideline requirements for an acute contact toxicity determination on honey bees with a technical material.

8. Recommendations: N/A

9. Background: This study, an acute contact toxicity test for honey bees with a technical product, was identified by Du Pont as a data requirement in the registration package.

10. Discussion of Individual Tests: N/A

11. Materials and Methods (by author)

A. Test animals were honey bees, Apis mellifera, collected from healthy hives maintained at Du Pont's Stine Farm.

Test system - Du Pont's bee colonies are allowed to forage freely. Once the bees are brought into the laboratory, they are fed a 50 percent honey/water solution. During the test this honey/water solution is contained in petri dishes, with one petri dish allocated to each test chamber.

On the day that a test started, enough bees were collected to complete that test. Bees were obtained by applying smoke to the entrance of the hive. When calm, the test bees were transferred to the laboratory.

Once taken to the laboratory, the test bees were maintained at a 16:8 (L:D) photocycle and temperature of 78°F.

The test chambers in which treated bees were placed consisted of 8 oz wax squat "Sweetheart" ice cream containers. The bees were confined, ten per chamber, with 1/14 inch mesh copper screen held in place by two size 12 rubber bands, crossing the screen at right angles. In test A, food was provided by placing the screen end of the chamber on a sponge cube that rested in a petri dish (9 cm diameter x 1 cm deep) containing 50 percent honey/water solution. For Test B, a petri dish (3.5 cm diameter x 1 cm deep) containing two one-inch lengths of dental cotton and 50 percent honey/water solution was placed in the chamber before the bees were confined. Both feeding methods were efficient, but the latter made for easier handling and observation.

Mortality responses were noted at the end of 48 hours.

B. Treatments were as follows:

INF-6025 was applied at 12.5 and 6.25 micrograms per bee in Test A, and 12.5, 6.25, 3.125 and 1.5625 micrograms per bee in Test B. In both tests, carbaryl was applied at 4, 2, 1, 0.5, 0.25, and 0.125 micrograms per bee.

A positive control in which twenty bees were treated with the solvent was included in each test. A negative control of untreated bees was included in Test B.

At each treatment level there were two replications of ten bees each.

Test bees were immobilized by confining them in 8 oz cylindrical plastic containers (11 cm diameter) in groups of approximately 100, and placing them in a freezer for four minutes.

Once immobilized, each bee received the appropriate dose in one milliliter of acetone, applied with a micropipette. Each bee was held by a wing with feather weight forceps, and the dose applied dorsally on the bee's thorax. The bee was then transferred to the appropriate test chamber for observation.

C. Design - See "Treatments" above.

D. Statistics - Due to lack of mortality in test groups, no analysis was conducted.

12. Reported Results:

In Test A, mortality in control units was 20%, thus rendering the data unusable from EEB's standpoint. After correction with Abbott's formula, there was no treatment mortality. In Test B, INF-6025 caused no mortality at the highest rate tested (12.5 micrograms per bee). Based on this data, the acute contact LD_{50} was estimated to be greater than 12.5 micrograms per bee, and INF-6025 was considered to be relatively non-toxic to honey bees.

13. Study Author's Conclusions/Q.A. Measures

INF-6025 was found to be relatively non-toxic to honey bees.

Quality assurance measures unknown.

14. Reviewer's Discussion and Interpretation of the Study

A. Test Procedure: Test procedures were in accordance with guideline protocols. There were no major problems in this regard.

B. Statistical Analysis: As there was no treatment mortality, no analysis was performed.

C. Discussion/Results: This compound is relatively non-toxic to honey bees.

D. Adequacy of study:

1. Classification: Core
2. Rationale: guidelines protocol
3. Repairability: N/A

15. Completion of One-liner for Study: N/A

16. CBI Appendix: N/A