

US EPA ARCHIVE DOCUMENT

Data Evaluation RecordCHEMICAL: ClothianidinPC Code No.: 044309

Three studies submitted to show effects of Clothianidin (active ingredient) and TI 435 FS600 (formulated product) on the life cycle of rove beetles (*Aleochara bilineata*) under extended laboratory conditions

Data Requirement

No requirement for submission under EPA Guidelines

Citations

MRID 454225-24 (Maus, 2001)
 MRID 454225-23 (R. Schmuck, 2000)
 MRID 454225-22 (R. Schmuck, 2000)

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 Date: 2-27-03

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Summary review: Effects of TI 435 a.i. on the Life Cycle of Rove Beetles (*Aleochara bilineata*) Under Extended Laboratory Conditions (MRID 454225-24)

Test substance: 100% active ingredient

Rates of application: 100, 150, 200, and 250 ug a.i. TI 435/kg soil, plus control and reference treatment (carbofuran)

This test was designed to evaluate the effects a seed treatment pesticide active ingredient would have on beneficial ground beetles exposed to the pesticide in treated soil. Study endpoints were adult mortality and total number of progeny under extended laboratory conditions. Carbofuran was used as a reference chemical in a test group for comparison to the control and treatment groups. Each test group included 4 replicates with 10 pairs of beetles per replicate. There were no significant differences observed between the control and TI 435 treatment groups for adult mortality. Reproductive performance (as indicated by decreased number of progeny) was affected in the two highest TI 435 treatment groups. Adult mortality in the carbofuran treatment was 98.63%.

Reviewer comments: This study is scientifically sound and is classified as **Supplemental**.



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Summary review: Effects of Maize Seed Dressed with TI 435 FS 600 on the Life Cycle of Rove Beetles (*Aleochara bilineata*) Under Extended Laboratory Conditions (MRID 454225-22)

Test Substance: TI 435 FS 600 (617.2 g/l = a.i. content)

Tested seed dressing rate: 50g a.i./Unit (1 Unit = 50,000 seed)

Tested seed drilling rate: 1 seed per 185 cm² test box = 10.8 U/ha

The goal of this study was to evaluate whether or not exposure of rove beetles to maize seeds dressed with 50 g a.i./Unit (43.1 g a.i. /Unit, measured) TI 435 FS 600 under more natural exposure conditions will result in a significantly increased mortality of parent beetles and whether or not the offspring production rate will be adversely affected. The beetles were housed in plastic boxes that measured 16.2 X 11.4 cm (185 cm²). Each box was filled with 500 g of natural soil. One maize seed was applied to each test box at a soil depth of 3 cm. 10 pairs of Rove Beetles were placed in a hole 2 cm deep and covered over with soil, so that the beetles could act as they would in a freshly drilled field. Pupae of the onion fly larvae were introduced into the box as host for the rove beetle larvae. There were 3 replicates of 10 pairs of beetles per test group. Carbofuran was used as a reference chemical in a test group for comparison to the control and treatment groups.

The control group had 6.7 % mortality compared to 55% mortality of the test substance groups, which was significantly different from the controls. The reproductive performance of the rove beetles was determined by counting the number of rove beetles which emerged from the host pupae between days 39 and 77 after treatment. The number of beetles that emerged from the treatment groups was not significantly different from the number in the control groups.

Reviewer comments: This study is scientifically sound and is classified as **Supplemental**

Summary review: Effects of Summer Rape Seed Coated with TI 435 FS 600 on the Life Cycle of Rove Beetles (*Aleochara bilineata*) Under Extended Laboratory Conditions (MRID 454225-23)

Test Product: TI 435 FS 600 (606.6 g/l)

Tested seed dressing rate: 10 g a.i./ kg

Tested seed drilling rate: 7 Seeds per 185 cm² test boxes (10.6 kg/ha)

The goal of this study was to evaluate whether or not exposure of rove beetles to summer rape seeds coated with 10 g a.i./kg (9.85 g a.i. /kg, measured) TI 435 FS 600 under more natural exposure conditions will result in significantly increased mortality of parent beetles and whether or not the offspring production rate will be adversely affected. There were 40 pairs of beetles (1-4 days old) per treatment group and 10 pairs per test box (4 treatment boxes in all). The 10 pairs of beetles were dropped in a hole of 2cm depth, and covered up with soil to behave normally as in a freshly drilled field. Pupae of the onion fly larvae were added to the soil as a host for the rove beetle larvae. Carbofuran was used as a reference chemical in a test group for comparison to the control and treatment groups. Under the laboratory test conditions, exposure to 10.6 kg/ha summer rape seeds coated with 10 g a.i./kg TI 435 FS600 resulted in a substantially increased mortality and reduced

parasitization capacity of rove beetles. The number of offspring that emerged from the test treatment groups was not significantly lower than the control group.

Reviewer comments: This study is scientifically sound and is classified as **Supplemental**