



Client: [Client] Date: March 2007
Project: [Client] [Product] Direct on [Species]
Project Code: [Code]
Test Method: 311-1

Project Title:

Evaluation of 3 Formulations of [Product] when applied directly onto
[Species].

Sample Report Only - NOT INTENDED FOR USE

Project Code:

[Code]

Test Date(s):

October 5, 2006 – October 7, 2006

Report Date:

March 2007

Authored by:

[Authors]

Snell Scientifics, LLC
472 Cannafax Road
Barnesville, GA 30204
770.358.4591



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COMPLIANCE STATEMENT

This study was NOT conducted in compliance with Good Laboratory Practice Standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose.

Submitter: _____ Date: _____

Sponsor: _____ Date: _____

Study Director: _____ Date: _____



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Objectives:

1. To determine the efficacy of 3 formulations of [Product] when applied as a pesticide sprayed directly onto [Species].

Treatments:

1. Control-Water
2. [Product]

Materials and Methods:

The following is the Snell Scientifics Standardized Testing Method for evaluating the efficacy of chemicals applied directly onto insects. Further details related to this specific test are described following the test method summary. Select action items and illustrations have been removed from this standardized test method in an effort to make the report more precise and accurate to the test conducted. Any details removed from this test method were deemed irrelevant to the test conducted in this report.

311.1 Materials:

- 311.1.1 Direct Spray Cartridges – Made of 3 plexiglass panels, each 4” square with a 3” hole in the center. The panels are sandwiched together with the insides surfaces of the outer 2 panels having cloth screen attached. The center panel acts as a spacer, wherein various thickness of plexiglass can be selected as the center spacer, depending on the height/thickness of the desired insect.
- 311.1.2 Pipettors – appropriate range for the amount being applied per panel
- 311.1.3 Disposable pipettor tips – replaced whenever changing chemicals
- 311.1.4 Digital scales – appropriate range for measuring powder formulations
- 311.1.5 CO2 and Regulator – standard 20 pound cylinders and gas regulator is used for anesthetizing insects (as necessary, depending on insects)
- 311.1.6 Chill Table – used for some insects to keep them asleep while sorting onto treated panels.
- 311.1.7 Intermediate transfer/holding chambers – used for housing insects after they have been removed from their primary breeding housing. Intermediate chambers are used to anesthetize insects and sort them to the treatment panels
- 311.1.8 Trigger Spray Bottles – separate bottles are used for each chemical and rate in order to apply the chemical to the Direct Spray Cartridges
- 311.1.9 B&G Multidose Dust Gun – use for applying dust into cartridges. Individual bottles are used for each chemical
- 311.1.10 For insects requiring sugar water to survive during the treatment period the cartridge can be modified with a slot to insert floral foam or other absorbent material soaked with sucrose solution or other food or water source.

311.2 Methods:

- 311.2.1 Direct Spray Cartridges are positioned on a cleaned counter into sets of 4. Each Cartridge is labeled with a treatment code and a replicate number. Each set of 4 cartridges are positioned in a group with the counter or trays clearly marked with quadrants for each treatment type (as a duplicate means of ensuring accurate data collection)
- 311.2.2 Pesticides are mixed per label directions using pipettors to measure liquid concentrates and using scales to measure dry, mixable powders.
- 311.2.3 Each container housing mixed chemical is clearly labeled with the chemical, rate, and date mixed.
- 311.2.4 Individual Trigger Spray bottles are labeled and filled with one chemical and rate (dust bottles are individually labeled when using dusts)
- 311.2.5 Control replicates will be treated with water only (the same water as used for mixing all other chemicals)
- 311.2.6 Insects are immobilized by the appropriate means.
- 311.2.7 Ten (10) insects are transferred to each Cartridge and the cartridge is closed and sealed with non-residue tape. All insects are confirmed alive and mobile to ensure all insects are alive inside the cartridge before treatment. Some species such as certain ant species, may require an absorbent insert as illustrated in the modified version in 311.3.
- 311.2.8 The process is repeated for 4 panels per chemical rate
- 311.2.9 The Trigger Spray bottles are positioned 2.5 inches away from the cartridge and squeezed firmly 1 time - applying 1 ml (1 pull) of liquid directly into each cartridge with insects.
- 311.2.10 The number of Dead, Knocked Down (KD) and Alive per panel are recorded at 15 minutes, 30 minutes, 60 minutes, 2 hours, 4 hours, and 24 hours.



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311.2.11 Additional Testing Details Not Fully Described in Standard Protocols:

Test Set-Up: The evaluations in this test followed Illustration 311.3.1

Replicates: Insect Stage Tested: Mid to late stage larvae
 # of Reps: 4
 # of Insects/Rep: 10

Source of Test Specimens: Specimens taken from lab-reared colony originally purchased from [Company].

Exposure of Test Specimens: Test specimens were exposed to materials for entire duration of test.

Conditions in Test Room: Temperature: 78 deg F Humidity: 55 %

Cartridge Details: Mesh Description: Carolina Biological Mesh #7250NSW
 Center Void Thickness: 6mm Acrylic

Mixture Rate Calculations:

Product/Code	[Product]	[Product]	[Product]
% Active in Concentrate	100%	100%	100%
Amt of Concentrate added	1ml	1.5ml	2.0ml
Amt of Carrier	99ml	98.5ml	98.0ml
Final % Mixture	1.0%	1.5%	2.00%

Applicator Type: Calibrated Pre-filled aerosol

Application Rate Calc:

Product and Code	[Product]		
Labeled Application rate	3sec/4ft		
Actual flow rate/sec (verified 5x)	1.37ml/sec		
Amount of Application time	3 sec		

Confirming Pest Condition:



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All were confirmed 'alive' 2 times prior to treatment:

- 1) the insects were removed from the breeding container by transferring only live insects to transfer container,
- 2) after all insects were transferred to the cartridges, they were confirmed to be moving before any applications were made.

Definition of Alive/Dead/Knockdown:

Alive: Insect exhibits forward motion or ability to fly

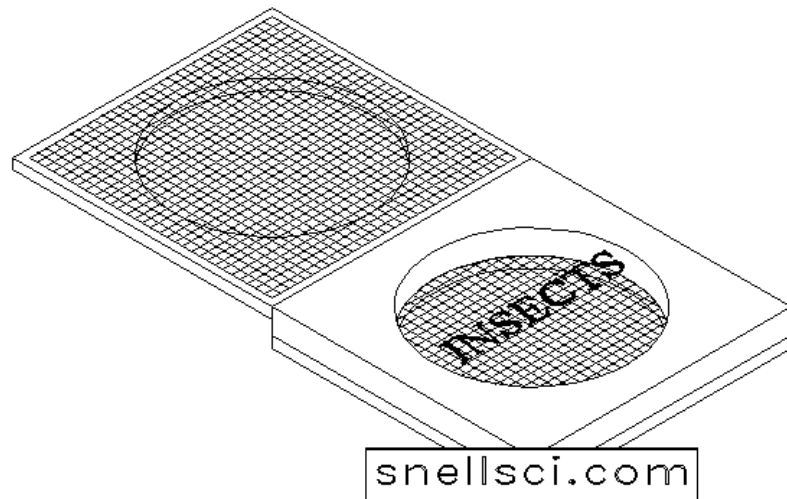
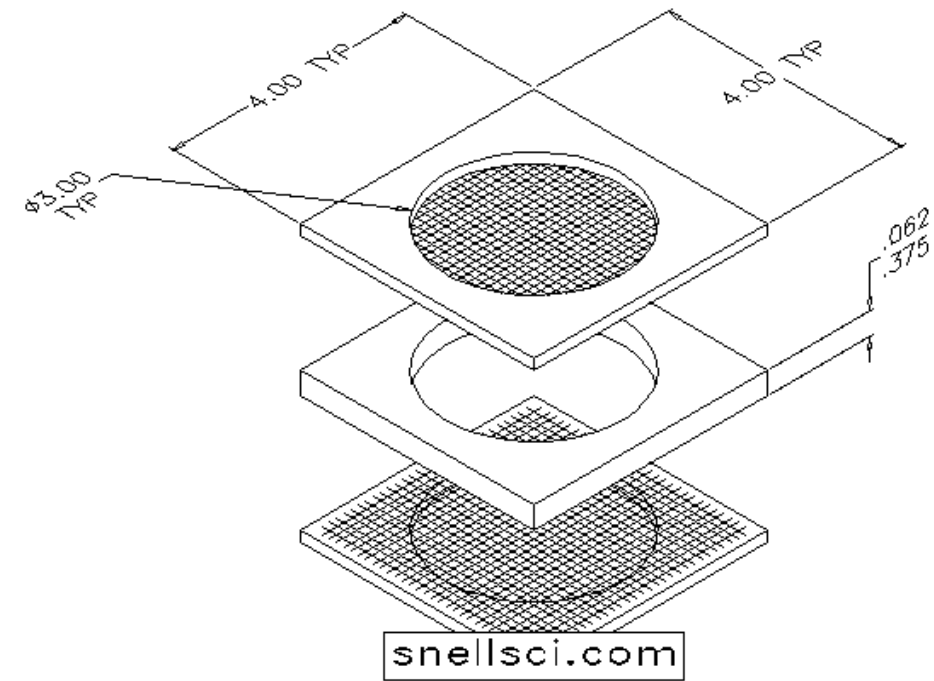
KD: Insect exhibits some movement but cannot fly or crawl

Dead: Insect exhibits no movement even when stimulated

Method Used to Evaluate Condition: Cartridge is raised and insects are blown on or prodded gently to agitate into movement.

311.3 Illustrations:

311.3.1 Standard Direct Spray Cartridge





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Results / Discussion:

This section will reflect the results of the tests and address any significant factors that might affect the outcome or interpretation of the results

The results of this study are tabulated in Tables 1-5. Table 1 illustrates the average mortality at each observation interval for each treatment. Tables 2-5 illustrate the number alive, dead and knockdown for each rep in each treatment, with the average over the 4 reps illustrated on the last line of the table.

Mortality rates for the chemicals and time frames were statistically compared with a t test for independent samples. All tests were conducted using a two-tailed distribution and probability value of $p < .05$.



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Tables:

Table 1.

Ave % Mortality of [Species] in All Treatments When Exposed by Direct Spray 4 Replicates 10 Specimens per Replicate						
Treatment	30 min	1 Hr	2 Hr	4 Hr	1 DAT	2 DAT
Water as Control	0%	0%	0%	0%	0%	0%
[Product] 1%	0%	0%	0%	0%	95%	100%
[Product] 1.5%	0%	0%	0%	0%	95%	100%
[Product] 2.0%	0%	0%	0%	0%	95%	100%

Table 2.

Efficacy of Water as Control When Applied by Direct Spray to [Species] 4 Replicates 10 Specimens per Replicate							
Treatment	Condition	30 min	1 Hr	2 Hr	4 Hr	1 DAT	2 DAT
A	Alive	100%	100%	100%	100%	100%	100%
	KD	0%	0%	0%	0%	0%	0%
	Dead	0%	0%	0%	0%	0%	0%
B	Alive	100%	100%	100%	100%	100%	100%
	KD	0%	0%	0%	0%	0%	0%
	Dead	0%	0%	0%	0%	0%	0%
C	Alive	100%	100%	100%	100%	100%	100%
	KD	0%	0%	0%	0%	0%	0%
	Dead	0%	0%	0%	0%	0%	0%
D	Alive	100%	100%	100%	100%	100%	100%
	KD	0%	0%	0%	0%	0%	0%
	Dead	0%	0%	0%	0%	0%	0%
Ave Dead		0%	0%	0%	0%	0%	0%



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Table 3.

Efficacy of [Product] 1% When Applied by Direct Spray to [Species] 4 Replicates 10 Specimens per Replicate							
Treatment	Condition	30 min	1 Hr	2 Hr	4 Hr	1 DAT	2 DAT
A	Alive	100%	30%	30%	0%	0%	0%
	KD	0%	70%	70%	100%	0%	0%
	Dead	0%	0%	0%	0%	100%	100%
B	Alive	100%	20%	10%	0%	0%	0%
	KD	0%	80%	90%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
C	Alive	100%	60%	0%	0%	0%	0%
	KD	0%	40%	100%	100%	20%	0%
	Dead	0%	0%	0%	0%	80%	100%
D	Alive	100%	80%	0%	0%	0%	0%
	KD	0%	20%	100%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
Ave Dead		0%	0%	0%	0%	95%	100%

Table 4.

Efficacy of [Product] 1.5% When Applied by Direct Spray to [Species] 4 Replicates 10 Specimens per Replicate							
Treatment	Condition	30 min	1 Hr	2 Hr	4 Hr	1 DAT	2 DAT
A	Alive	100%	20%	0%	0%	0%	0%
	KD	0%	80%	100%	100%	0%	0%
	Dead	0%	0%	0%	0%	100%	100%
B	Alive	100%	0%	0%	0%	0%	0%
	KD	0%	100%	100%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
C	Alive	100%	0%	0%	0%	0%	0%
	KD	0%	100%	100%	100%	20%	0%
	Dead	0%	0%	0%	0%	80%	100%
D	Alive	100%	0%	0%	0%	0%	0%
	KD	0%	100%	100%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
Ave Dead		0%	0%	0%	0%	95%	100%



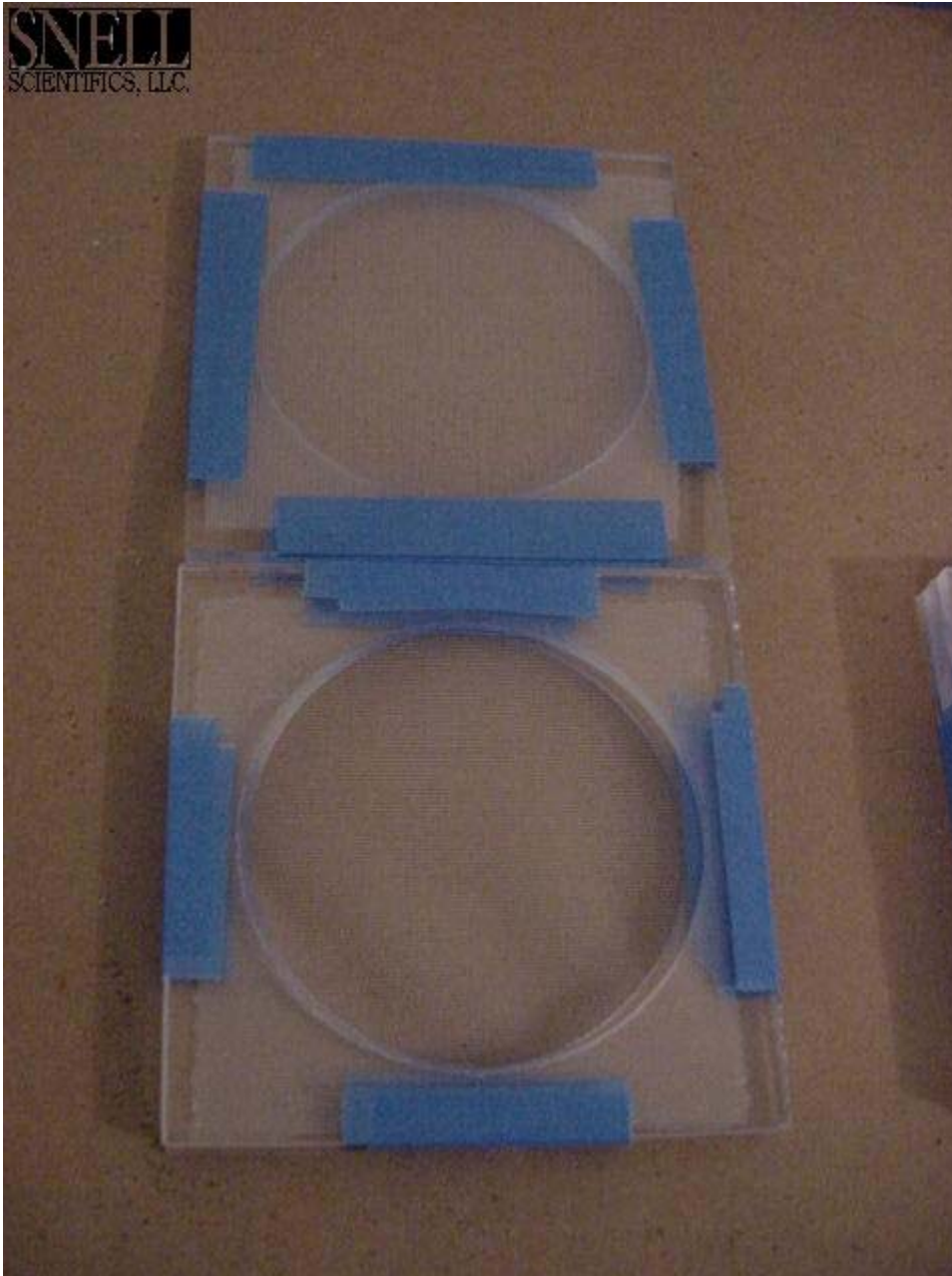
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Table 5.

Efficacy of [Product] 2.0% When Applied by Direct Spray to [Species] 4 Replicates 10 Specimens per Replicate							
Treatment	Condition	30 min	1 Hr	2 Hr	4 Hr	1 DAT	2 DAT
A	Alive	100%	80%	0%	0%	0%	0%
	KD	0%	20%	100%	100%	0%	0%
	Dead	0%	0%	0%	0%	100%	100%
B	Alive	100%	40%	0%	0%	0%	0%
	KD	0%	60%	100%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
C	Alive	100%	60%	0%	0%	0%	0%
	KD	0%	40%	100%	100%	20%	0%
	Dead	0%	0%	0%	0%	80%	100%
D	Alive	100%	0%	0%	0%	0%	0%
	KD	0%	100%	100%	100%	10%	0%
	Dead	0%	0%	0%	0%	90%	100%
Ave Dead		0%	0%	0%	0%	95%	100%

Photographs:

Photograph 1.



Photograph 2.





Client: [Client] Date: March 2007
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Raw Data:

Test Title: ██████ Panel TM #: _____ Species: Argentine Date: 1/31/2007
 Week #4 Ants
 Panel Treatment Time 10:00 Insect Exposure Time (start time): 11:45
 p: 77 Humidity: 24 Log Location: # 7-65
 Researcher: Wally Sexton
 Test Intervals _____
 Store panels (Y/N) _____
 Date Broken down _____
 Test Descripti Arena set up: SS panel w/mesh tops
 Applicator Type & Flow Rate Preval @ 0.77ml/sec Applied @ 2 seconds over a 2 foot
 Product & Mixture Rate distance or 1.54ml/24 in ~0.064ml/in. ~0.256ml/4in.
 Water

Test:		30 min	1 hr	2 hr	4 hr	24 hr	2 DAT	3 DAT	4 DAT
A	Alive	10	10	10	4	0	0		
	Pre wt. 16. KD	0	0	0	2	0	0		
	Post wt. 16 Dead	0	0	0	4	10	10		
B	Alive	10	10	10	1	0	0		
	Pre wt. 16. KD	0	0	0	3	2	0		
	Post wt. 16 Dead	0	0	0	6	8	10		
Ave Dead									

Tech Daily Initials _____
 Test Descripti Arena set up: SS panel w/mesh tops
 Applicator Type & Flow Rate Supplied Aerosol @ 1.9ml/sec. Applied @ 2 seconds over a 2 foot
 Product & Mixture Rate distance or 3.8ml/24 in ~0.158ml/in. ~0.632ml/4in.
████████████████████

Test:		30 min	1 hr	2 hr	4 hr	24 hr	2 DAT	3 DAT	4 DAT
A	Alive	10	10	9	4	7	0		
	Pre wt. 16. KD	0	0	0	0	0	0		
	Post wt. 16 Dead	0	0	1	6	9	10		
B	Alive	8	6	4	2	0	0		
	Pre wt. 16. KD	2	3	0	0	0	0		
	Post wt. 16 Dead	0	1	6	8	10	10		
C	Alive	10	9	7	2	0	0		
	Pre wt. 16. KD	0	0	0	0	0	0		
	Post wt. 16 Dead	0	0	3	8	10	10		
D	Alive	10	7	6	3	0	0		
	Pre wt. 16. KD	0	3	2	0	0	0		
	Post wt. 16 Dead	0	0	4	5	10	10		
Ave Dead									

Researcher Signature: Wally Sexton Date: 2-2-07



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Test Substance Receiving Log:

Snell Scientifics Chemical Tracking Log												
Date of arrival	Shipper (UPS, FedEx)	Company	Snell Sci Project Code	Chemical name Lot/Lab Code	Formulation (EC, dust, etc)	Amount	Container type (glass, plastic)	Condition of packaging	Storage location of product	Photo taken	Label/MSDS copied & filed	Initial by
2-2-07	UPS	Company X	Code	Test Prod. 1	Liquid RTU	5 8oz.	Plastic Bottle	Good	New Chem. Storage	✓	✓	SS
				Test Prod. 2	Liquid RTU	2.5 8oz.	Plastic Bottle	Good	New Chem. Storage	✓	✓	SS



Client: [Client] Date: March 2007
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Test Substance Storage Log:

Storage Log for Test Substances
Snell Scientifics LLC
Barnesville GA

Location: Lockable cabinet in mixing lab			
Recording Mechanism: Digital thermometer/hygrometer. Data recorded daily.			
Date	Temp	Humidity	Comments
2-2-07	65	48	
2-3-07	66	51	
2-4-07	64	50	
2-5-07	64	51	
2-6-07	65	50	