UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

June 7, 2004

MEMORANDUM

Subject:	Name of Pesticide Product:	Abamectin Technical	
	EPA Reg. No. /File Symbol:	72167-EN	
	DP Barcode:	D300167	
	Decision No.:	219562	
	PC Codes:	122804	Abamectin

From: Breann Hanson, Toxicologist BH
Technical Review Branch
Registration Division (7505C)

To: Thomas Harris, RM Team 07
Insecticide-Rodenticide Branch
Registration Division (7505C)

Applicant: Nations Ag II, LLC
1548 Harbor Road
Williamsburg, VA 23185

FORMULATION FROM LABEL:

Active Ingredient(s):			% by wt.
122804	Abamectin	CAS No. 65195-55-3 and 65195-56-4	97.6%
Inert Ingredient(s):			2.4%
		Total:	100.00%

ACTION REQUESTED:

The Product Manager requests:

> "Please review additional acute oral for this generic abamectin technical. Previous acute oral done with corn oil; this one uses sesame oil (more solubility and hence more exposure to ai). MRID 462082-01"

BACKGROUND: Nations Ag II, LLC has resubmitted an acute oral toxicity study in support of registration for Abamectin Technical, EPA File Symbol 72167-EN. The study was conducted at Product Safety Labs, Dayton, New Jersey; with assigned MRID number 46208201. In the previous study, MRID 45544003, the suspension of test article was prepared using corn oil and resulted in an oral toxicity category of II. Due to the sponsor's request the test was readministered using sesame oil as the vehicle of suspension. The acute dermal toxicity, acute inhalation toxicity, primary eye irritation, primary dermal irritation, and dermal sensitization studies (MRID 455440-04 through -08) were previously reviewed in a TRB memorandum (Backus; D285183; EPA File Symbol 72167-EN; 10/DEC/2002) and deemed acceptable.

RECOMMENDATIONS: The acute oral toxicity study has been reviewed and is classified as acceptable. The acute dermal toxicity, acute inhalation toxicity, primary eye irritation, primary dermal irritation, and dermal sensitization studies referenced above may be bridged to this proposed product. The acute toxicity profile for Abamectin Technical, EPA File Symbol 72167-EN is:

Acute oral toxicity [a]	I	Acceptable	MRID 46208201
Acute dermal toxicity	II	Cited	MRID 45544004
Acute inhalation toxicity	II	Cited	MRID 45544005
Primary eye irritation	III	Cited	MRID 45544006
Primary skin irritation	IV	Cited	MRID 45544007
Dermal sensitization	Negative	Cited	MRID 45544008

[a] The incorrect protocol (OECD 401: Acute Oral LD50) was used for this test. Although, we accepted the study in this case, our guidance is that OECD 401 is an unacceptable protocol. Please inform the Registrant that the preferred protocol is OECD 425: Acute Oral Toxicity-Up-and-Down Procedure.

LABELING: Based on the toxicity profile above, the following are the precautionary and first aid statements for this product as obtained from the Label Review System. Due to the newly submitted acute oral toxicity study, the signal word has changed from WARNING to DANGER:

PRODUCT ID #: **072167-00020**

PRODUCT NAME: Abamectin Technical

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals:

SIGNAL WORD: DANGER
POISON ☠

Restricted Use Pesticide due to toxicity categories. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

Fatal if swallowed. May be fatal if absorbed through skin or inhaled. Causes moderate eye irritation. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Wear coveralls worn over short-sleeved shirt and short pants, socks, chemical-resistant footwear, chemical-resistant gloves and a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N, R, P or HE filter. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

First Aid:

If swallowed:
-Call a poison control center or doctor immediately for treatment advice.
-Have person sip a glass of water if able to swallow.
-Do not induce vomiting unless told to by a poison control center or doctor.
-Do not give anything to an unconscious person.

If on skin:
-Take off contaminated clothing.
-Rinse skin immediately with plenty of water for 15-20 minutes.
-Call a poison control center or doctor for treatment advice.

If inhaled:
-Move the person to fresh air.
-If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
-Call a poison control center or doctor for further treatment advice.

If in eyes:
-Hold eye open and rinse slowly and gently with water for 15-20 minutes.
-Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.

-Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: Note to PM/CRM/Registrant: The proposed label should contain a Note to Physician which addresses the category I Acute Oral Toxicity. The following statements are suggested types of information that may be included, if applicable:
- technical information on symptomatology;
- use of supportive treatments to maintain life functions;
- medicine that will counteract the specific physiological effects of the pesticide;
- company telephone number to specific medical personnel who can provide specialized medical advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-xxx-xxxx for emergency medical treatment information.

Reviewer: Breann Hanson **Date:** June 7, 2004
Risk Manager (EPA): Thomas Harris, RM 07

STUDY TYPE: Acute Oral Toxicity - S-D Rat; OPPTS 870.1100; OECD 401

TEST MATERIAL: Abamectin Technical (Abamectin: 95%; Lot #: 20010202; off-white powder)

CITATION: Merkel, D. (2003) Acute Oral Toxicity Study in Rats - Defined LD_{50}. Laboratory Study Number: 12651. Unpublished study prepared by Product Safety Labs. June 24, 2003. MRID 46208201.

SPONSOR: Nations Ag II, LLC, 1548 Harbor Road, Williamsburg, VA 23185

EXECUTIVE SUMMARY: In an acute oral toxicity study (MRID 46208201), 20/sex Sprague Dawley rats (Age: 8-11 weeks, Weight: 194-313 g males, 156-230 g females; Source: Ace Animals, Inc., Boyertown, PA) were given a single oral dose of Abamectin Technical (Abamectin: 95%; Lot #: 20010202; off-white powder) using a gavage. Four dose groups of 5/sex were administered the test substance at either 5, 25, 35 or 50 mg/kg. The test article was prepared as a 0.1%, 0.5%, 0.7% or 1.0% w/w suspension in sesame oil. Individual animal body weights were recorded prior to test substance administration and then on days 7 and 14 or after death. Clinical signs of toxicity, behavioural changes and mortality were made twice on initial study day, and daily thereafter. All surviving animals were necropsied on study day 14.

Oral LD_{50} Males => 29.58 mg/kg (95% C.I = 23.04-37.98 mg/kg)
Oral LD_{50} Females => 27.54 mg/kg (95% C.I = 20.64-34.48 mg/kg)
Oral LD_{50} Combined => 28.47 mg/kg (95% C.I = 24.59-32.62 mg/kg)

LD_{50} calculated by the Moving Angle Average Method.

Based on the LD_{50}, Abamectin Technical is classified as EPA Toxicity Category I.

All animals dosed at 5 mg/kg survived, gained weight and appeared healthy during the study. No gross internal findings were observed at necropsy.

1/sex animals died within 2 days of being administered 25 mg/kg of test article. Clinical signs of toxicity noted prior to death included decreased activity, prone posture and tremors. Gross necropsy revealed discolouration of the lungs and intestines. The surviving animals exhibited facial and ano-genital staining, decreased activity, reduced fecal volume, ocular discharge and soft feces, but recovered from these symptoms by study day 3 and gained weight by the end of the study. No gross internal findings were observed at necropsy for these animals.

4/5 males and 5/5 females died within 4 days of being administered 35 mg/kg of test article. Clinical signs of toxicity noted prior to death included decreased activity, abnormal posture, tremors, diarrhea, ano-genital staining and ocular discharge. Gross necropsy revealed discolouration of the lungs and intestines. The surviving animal exhibited decreased activity, reduced fecal volume and hunched posture, but recovered by study day 3 and gained weight by the end of the study. No gross internal findings were observed at necropsy for the surviving animal.

All animals dosed at 50 mg/kg died on study day 1. Clinical signs of toxicity noted prior to death included decreased activity, tremors, irregular respiration and gasping. Gross necropsy revealed discolouration of the lungs and intestines.

This acute oral study is classified as acceptable. It does satisfy the guideline requirement for an acute oral study (OPPTS 870.1100; OECD 401) in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

Individual animals were dosed as follows:

Dose Level (mg/kg)	Number Dead/Number Tested		
	Males	Females	Total
5	0/5	0/5	0/10
25	1/5	1/5	2/10
35	4/5	5/5	9/10
50	5/5	5/5	10/10

LD_{50} calculated by the Moving Angle Average Method.

A. Mortality - As noted in table.

B. Clinical observations - All animals dosed at 5 mg/kg survived, gained weight and appeared healthy during the study.

1/sex animals died within 2 days of being administered 25 mg/kg of test article. Clinical signs of toxicity noted prior to death included decreased activity, prone posture and tremors. The

surviving animals exhibited facial and ano-genital staining, decreased activity, reduced fecal volume, ocular discharge and soft feces, but recovered from these symptoms by study day 3 and gained weight by the end of the study.

4/5 males and 5/5 females died within 4 days of being administered 35 mg/kg of test article. Clinical signs of toxicity noted prior to death included decreased activity, abnormal posture, tremors, diarrhea, ano-genital staining and ocular discharge. The surviving animal exhibited decreased activity, reduced fecal volume and hunched posture, but recovered by study day 3 and gained weight by the end of the study.

All animals dosed at 50 mg/kg died on study day 1. Clinical signs of toxicity noted prior to death included decreased activity, tremors, irregular respiration and gasping.

C. Gross Necropsy - No gross internal findings were observed at necropsy for animals dosed at 5 mg/kg.

Gross necropsy revealed discolouration of the lungs and intestines for those animals that died after being administered 25, 35 or 50 mg/kg of test article. No gross internal findings were observed at necropsy for the surviving animals.

D. Reviewer's Conclusions: Agree with study author.

1. **DP BARCODE:** D300167
2. **PC CODE:** 122804 Abamectin
3. **CURRENT DATE:** 07/JUN/2004
4. **TEST MATERIAL:** Abamectin Technical (Abamectin: 95%; Lot #: 20010202; off-white powder)

Study/Species/Lab Study #/Date	MRID	Results	Tox. Cat.	Core Grade
Acute oral toxicity/rat/ Product Safety Labs/Lab Study No. 12651/06-24-2003	46208201	LD_{50} Combined = 28.47 mg/kg	I	A

Core Grade Key: **A =Acceptable, S = Supplementary, U = Unacceptable, V = Self Validated**