

Shaughnessey Number

Completed: 1-16-84

Revised: _____

EEB CHEMICAL PROFILE

Pesticide Name Azadirachtin (Margosan-O)

100 Fish and Wildlife Toxicology

100.1 Minimum Requirements

100.1.1 Avian Acute Oral LD₅₀

| <u>Species</u> | <u>Test Material</u> | <u>Result</u> | <u>Category</u> | <u>Reference</u> (Acc. No.) |
|----------------|------------------------|---------------|-----------------|--------------------------------|
| Mallard Duck | Margosan-0 Concentrate | 49.92 mg/kg | Core | 252097 |

100.1.2 Avian Dietary LC₅₀

| <u>Species</u> | <u>Test Material</u> | <u>Result</u> | <u>Category</u> | <u>Reference</u> (Acc.No.) |
|----------------|---|--|-----------------|-------------------------------|
| Bowwhite Quail | Margosan-0 Concentrate (containing 0.3% azadirachtin, [REDACTED]) | >21 ppm a.i. (the highest level tested) | Core* | 252097 |
| Mallard Duck | " | >21 ppm a.i. (The highest level tested) | Core* | 252097 |

*This study does fulfill the requirement for an LC₅₀ to waterfowl where the estimated environmental concentration of azadirachtin in avian feed from the use of Margosan-0 is less than or equal to 21 ppm.

100.1.3 Fish Acute LC₅₀

| <u>Species</u> | <u>Test Material</u> | <u>Result</u> | <u>Category</u> | <u>Reference</u> (Acc. No.) |
|------------------|---|--|-----------------|--------------------------------|
| Rainbow Trout | Margosan-0 Concentrate (containing 0.3% azadirachtin, [REDACTED]) | 0.24 .022 mg/l a.i. (C.L. 0.02-0.04 mg/l a.i.) .015-.036 RMS | Core* | 252097 |
| Bluegill Sunfish | " | (0.12 mg/l a.i. (C.L. 20-60 mg/l a.i.) RMS (C.L. .06 and .18 mg/l a.i.) RMS | Core* | 252091 |

*If the technical grade of the active is declared to contain 0.3% azadirachtin

INERT INGREDIENT INFORMATION IS NOT INCLUDED

100.1.4 Aquatic Invertebrate LC₅₀

| <u>Species</u> | <u>Test Material</u> | <u>Result</u> | <u>Category</u> | <u>Reference</u> (Acc. No.) |
|----------------------|---|--|-----------------|--------------------------------|
| <u>Daphnia magna</u> | Margosan-0 Concentrate (Containing 0.3% azadirachtin, [REDACTED]) | 0.032 0.43 mg/l a.i. (C.L. 0.026-0.057 mg/l a.i.) 0-0.18 <i>Rat</i> | Core | 252097 |

*If the technical grade of the active
is declared to contain 0.3% azadirachtin.

100.2 Additional Terrestrial Laboratory Tests

-None-

100.3 Additional Aquatic Laboratory Tests

-None-

100.4 Field Test

-None-

101 General Toxicology

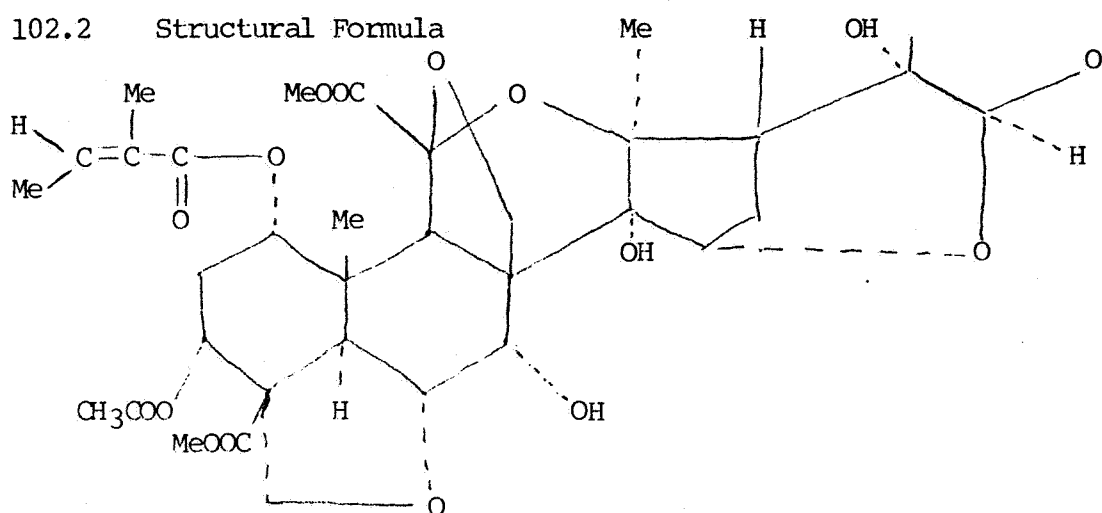
| <u>Species</u> | <u>Test Material</u> | <u>Result</u> | <u>Category</u> | <u>Reference</u> (Acc. No) |
|-------------------------------|--|---|-----------------|-------------------------------|
| Albino rats (both sexes) | A charcoal-brown liquid identified as Margosan-0 concentrate [REDACTED] and has a density of 1.04 grams/ml | Oral LD ₅₀ >5.0 mg/kg of test material or >.015 mg/kg ai. | Unknown | 252097 |
| New Zealand Albino Rabbits | " | Dermal LD ₅₀ >2.0 ml/kg product or >.006 ml/kg a.i. | " | " |
| Wistar Albino Rats | Margosan T-20 Concentrate | Inhalation LC ₅₀ >43.9 mg/hr. of test material (percent active ingredient of Margosan T-20 not given. | " | " |

102 Physical and Chemical Properties

102.1 Chemical Name

-None-

102.2 Structural Formula



102.3 Common Name

Azadirachtin

102.4 Trade Name

Margosan

102.5 Molecular Weight

NA

102.6 Physical State

Margosan-0 (concentrate) is a brown semi-viscous liquid

102.7 Properties

102.7.1 Solubility

- Not submitted -

102.7.2 Octanol/Water Partition COefficient

- Not submitted -

102.7.3 Soil Adsorption Coefficient Kd

102.7.4 Vapor Pressure

- Not submitted -

103 Behavior in the Environment

103.1 Soil

- Not submitted -

103.2 Water

- Not submitted -

103.3 Plant

- Not submitted -

103.4 Animal

- Not submitted -

103.5 Estimated Environmental Concentrations

- Not requested due to the
lack of physical and chemical
properties data and environmental
fate data.

104 Uses and Special Concerns

This is a biological insecticide derived from the seed of a tree
as reported by Vikwood Ltd in Acc. No. 2523097:

The Neem seed of the Indian tree named Azadirachta indica, an
indigenous species of India and of the tropical regions of that
area, as well as Africa, yields a natural product whose essence
repels insects by smell or taste, and also acts as a growth
modifier by inducing hormonal change in various insects in their
larval stages.

Dennis J. McLane
Dennis J. McLane, Wildlife Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

Date: 1-17-84

Raymond W. Matheny
Raymond W. Matheny
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Date: 1/18/84

Norman Cook
Clayton Rushong, Chief
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Hazard Evaluation Division (TS-769)

1-19-84
Date:

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PILSUCKI MARGOSAN-0 DAPHNIA MAGNA

| CONC. | NUMBER EXPOSED | NUMBER DEAD | PERCENT DEAD | BINOMIAL PROB. (PERCENT) |
|-------|-------------------|----------------|-----------------|-----------------------------|
| .3 | 20 | 20 | 100 | 9.53674E-05 |
| .18 | 20 | 20 | 100 | 9.53674E-05 |
| .099 | 20 | 14 | 70 | 5.76592 |
| .054 | 20 | 13 | 65 | 13.1588 |
| .03 | 20 | 8 | 40 | 25.1722 |

THE BINOMIAL TEST SHOWS THAT 0 AND .18 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS .0379089

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

| SPAN | G | LC50 | 95 PERCENT CONFIDENCE LIMITS |
|------|---------|----------|------------------------------|
| 1 | 1.61325 | .0379089 | 0 +INFINITY |

RESULTS CALCULATED USING THE PROBIT METHOD

| ITERATIONS | G | H | GOODNESS OF FIT PROBABILITY |
|------------|---------|---|-----------------------------|
| 5 | .170986 | 1 | .232563 |

SLOPE = 2.57822
95 PERCENT CONFIDENCE LIMITS = 1.51212 AND 3.64433

LC50 = .041061
95 PERCENT CONFIDENCE LIMITS = .0257437 AND .0546364

LC10 = .0132081
95 PERCENT CONFIDENCE LIMITS = 4.11206E-03 AND .0221679

PILSUCKI MARGOSAN-0 SALMO GAIRDNERI

| CONC. | NUMBER EXPOSED | NUMBER DEAD | PERCENT DEAD | BINOMIAL PROB.(PERCENT) |
|-------|-------------------|----------------|-----------------|----------------------------|
| .06 | 10 | 10 | 100 | .0976563 |
| .036 | 10 | 10 | 100 | .0976563 |
| .024 | 10 | 3 | 30 | 17.1875 |
| .015 | 10 | 0 | 0 | .0976563 |
| .009 | 10 | 0 | 0 | .0976563 |

THE BINOMIAL TEST SHOWS THAT .015 AND .036 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS .0263274

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE
PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE
NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

PILSUCKI MARGOSAN-0 LEPOMIS MAROCHIRUS

| CONC. | NUMBER EXPOSED | NUMBER DEAD | PERCENT DEAD | BINOMIAL PROB. (PERCENT) |
|-------|-------------------|----------------|-----------------|-----------------------------|
| .3 | 10 | 10 | 100 | .0976563 |
| .18 | 10 | 10 | 100 | .0976563 |
| .105 | 10 | 2 | 20 | 5.46875 |
| .06 | 10 | 0 | 0 | .0976563 |
| .036 | 10 | 0 | 0 | .0976563 |

THE BINOMIAL TEST SHOWS THAT .06 AND .18 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS .124413

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE
PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE
NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.
