MEMORANDUM

Subject: Upgrading of aquatic toxicity studies on α-Naphthol a degradeate of technical Carbaryl (Record No. 238220).

From: James W. Akerman, Chief
Ecological Effects Branch (H7507C)

To: Dennis Edwards, PM#12
Insecticide and Rodenticide Branch
Registration Division

In March of 1988 this branch reviewed a submission (MRID-265665) from Rhône-Poulenc Ag Company of studies done by Springborn Bionomics on α-Naphthol, a degradeate of Carbaryl (Shaughnessy No. 056801). EEB ruled that these studies were only "Supplemental" because of questions about the stability of the chemical in water and the methods of calculating the LC₅₀s under conditions of changing chemical concentrations.

Rhône-Poulenc answered these objections in a recent submission (MRID-409552). Generally they stated that the decrease in the concentration of α-Naphthol was due to the metabolism of the fish in the aquaria and that this decrease did not take place in aquaria used to test species that have a smaller mass.

They recalculated the LC₅₀s based on median concentrations between measurements and reported the LC₅₀s and NOELs.

EEB biologist James Goodyear has reviewed the new study reports and has found that they fulfill the guideline requirements. A copy of the report, "Overview: Aquatic Toxicity of 1-Naphthol", by Rhône-Poulenc, has been retained in EEB's files.
DATA EVALUATION RECORD
α-Naphthol, a Carbaryl Degradate
Acute Toxicity in Aquatic Invertebrates
Mysis Shrimp (Mysisopsis bahia)

GUIDELINE NUMBER: 72-3

CITATION:

REASON FOR SUBMISSION:
Registrant's response to a previous review of the same study that had been classified as "Supplemental but can be upgraded."

RESULTS- Valid X Invalid ___________ Incomplete ______
GUIDELINE- Satisfied X Partially Satisfied _____ Not Satisfied _____

DISCUSSION:
The registrant has satisfactorily explained the questions raised in the previous review and recalculated the LC₅₀ to adjust for the change in the concentration of α-naphthol. EEB accepts the study as "Core", with an LC₅₀ = 0.21 (C.I. 0.19 - 0.25) mg/l (calculated with the moving average method) and a NOEL = 0.06 mg/l. The degradeate would be categorized as being "Highly Toxic" to Mysis shrimp.

REVIEWED BY:
James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)
Signature: ____________________________
Date: ____________________________

APPROVED BY:
Raymond W. Matheny
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)
Signature: ____________________________
Date: ____________________________
DATA EVALUATION RECORD
α-Naphthol, a Carbaryl Degradate
Acute Toxicity in Aquatic Invertebrates
Bluegill sunfish (Lepomis macrochirus)

GUIDELINE NUMBER: 72-1

CITATION:

REASON FOR SUBMISSION:
Registrant's response to a previous review of the same study that had been classified as "Supplemental but can be upgraded."

RESULTS- 
Valid ___ X ___ Invalid _________ Incomplete _______

GUIDELINE- 
Satisfied ___ X ___ Partially Satisfied _______ Not Satisfied _______

DISCUSSION:
The registrant has satisfactorily explained the questions raised in the previous review and recalculated the LC₅₀ to adjust for the change in the concentration of α-naphthol. EEB accepts the study as "Core", with an LC₅₀ = 0.76 (C.I. 0.51 - 1.0) mg/l (calculated with the probit method) and a NOEL = <0.43 mg/l. The degradeate would be categorized as being "Highly Toxic" to Mysis shrimp.

REVIEWED BY:
James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)
Signature: __________________________
Date: __________________________

APPROVED BY:
Raymond W. Matheny
Head, Section 1
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Environmental Fate and Effects Division (H7507C)
Signature: __________________________
Date: __________________________
DATA EVALUATION RECORD
α-Naphthol, a Carbaryl Degradate
Acute Toxicity in Aquatic Invertebrates
Daphnids (Daphnia magna)

GUIDE LINE NUMBER: 72-2

CITATION:

REASON FOR SUBMISSION:
Registrant's response to a previous review of the same study that had been classified as "Supplemental but can be upgraded."

RESULTS-  Valid X  Invalid  Incomplete

GUIDELINE-  Satisfied X  Partially Satisfied  Not Satisfied

DISCUSSION:
The registrant has satisfactorily explained the questions raised in the previous review and recalculated the LC_{90} to adjust for the change in the concentration of α-naphthol. EEB accepts the study as "Core", with an LC_{90} = 0.73 (C.I. 0.60 - 0.87) mg/l (calculated with themoving average method) and a NOEL of <0.29 mg/l. The degradeate would be categorized as being "Highly Toxic" to Daphnia magna.

REVIEWED BY:
James J. Goodyear  Signature:________________________________________
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)
Date:________________________________________

APPROVED BY:
Raymond W. Matheny  Signature:________________________________________
Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)
Date:________________________________________
DATA EVALUATION RECORD
α-Naphthol, a Carbaryl Degradate
Acute Toxicity in Freshwater Fish
Rainbow trout (Salmo gairdneri)

GUIDELINE NUMBER: 72-1

CITATION:

REASON FOR SUBMISSION:
Registrant's response to a previous review of the same study that had been classified as "Supplemental but can be upgraded."

RESULTS- Valid X Invalid _______ Incomplete ______
GUIDELINE- Satisfied X Partially Satisfied _____ Not Satisfied _____

DISCUSSION:
The registrant has satisfactorily explained the questions raised in the previous review and recalculated the LC₅₀ to adjust for the change in the concentration of α-naphthol. EEB accepts the study as "Core", with an LC₅₀ = 1.4 (C.I. = 1.0 - 2.0) mg/l (calculated with the binomial method) and a NOEL of 0.55 mg/l. The degradeate would be categorized as being "Moderately Toxic" to Rainbow trout.

REVIEWED BY:
James J. Goodyear
Biologist, Section 1
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Environmental Fate and Effects Division (H7507C)
Signature: __________________________
Date: __________________________
DATA EVALUATION RECORD
α-Naphthol, a Carbaryl Degradate
Acute Toxicity in Freshwater Fish
Sheepshead Minnow (Cyprinodon variegatus)

GUIDELINE NUMBER: 72-3

CITATION:

REASON FOR SUBMISSION:
Registrant's response to a previous review of the same study that had been classified as "Supplemental but can be upgraded."

RESULTS-
Valid X Invalid ________ Incomplete _______

GUIDELINE-
Satisfied X Partially Satisfied _____ Not Satisfied _____

DISCUSSION:
The registrant has satisfactorily explained the questions raised in the previous review and recalculated the LC_{50} to adjust for the change in the concentration of α-naphthol. EEB accepts the study as "Core", with an LC_{50} = 1.2 (C.I. = 0.81 - 1.7) mg/l (calculated with the binominal method) and a NOEL of 0.46 mg/l. The degradable would be categorized as being "Moderately Toxic" to Sheepshead minnows.

REVIEWED BY:
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