5-1-83

028201
SHAUGHNESSEY NO.

23
REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 1/28/83 OUT 3/1/83

FILE OR REG. NO. 707-75

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 1/21/83

DATE RECEIVED BY HED 1/27/83

RD REQUESTED COMPLETION DATE 3/28/83

EEB ESTIMATED COMPLETION DATE 3/21/83

RD ACTION CODE/TYPE OF REVIEW 570/Amendment

TYPE PRODUCT(S): I, D, H, F, N, R, S Herbicide

DATA ACCESSION NO (S).

PRODUCT MANAGER NO. R. Taylor (25)

PRODUCT NAME (S) Stampede 3E

COMPANY NAME Rohm & Haas Company

SUBMISSION PURPOSE Submission of Aquatic Data for Review

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
028201	Technical Propanil	86.2

STAM M-4 (Stampede)

100 Pesticide Label Information

100.1 Pesticide Use

STAM M-4 is a technical material used in making herbicides.

100.2 Formulation Information

STAM M-4 contains 86.2% active ingredient (Propanil).

103 Toxicological Properties

The following studies were submitted for review:

Acute (96-hr) LC_{50} - Bluegill Sunfish 96-hr LC_{50} = 5.4 mg ai/l

Acute (48-hr) LC_{50} - Daphnia magna 48-hr LC_{50} = 6.7 mg ai/l

104.4 Adequacy of Toxicity Data

The submitted studies fulfill the USEPA guidelines requirements for acute toxicity studies on a species of warmwater fish and a species of aquatic invertebrate.

Thomas B. Johnston 2/28/83

Thomas B. Johnston
Biologist, Ecological Effects Branch

Norman Cook 2.28.83

Norm Cook
Section Head, Ecological Effects Branch

Clayton Bushong 3/1/83

Clayton Bushong
Branch Chief, EEB/HED

DATA EVALUATION

1. CHEMICAL: STAM M-4 (Stampede)

2. FORMULATION: Technical - 86.2% active ingredient

3. CITATION: Biospherics, Inc. (1982) The Acute Toxicity of STAM Technical to Daphnia magna Straus; unpublished report submitted to EPA by Rohm and Hass Co., Philadelphia, Pa., 1/21/83

EPA Accession No. 249347

4. REVIEWED BY: Thomas B. Johnston
Fisheries Biologist, EEB/HED

5. REVIEW DATE: Feb. 28, 1983

6. TEST TYPE: Acute (48-hr) LC_{50} - Daphnia magna

7. REPORTED RESULTS: The acute 48-hr LC_{50} of STAM Technical to Daphnia magna is 6.7 mg ai/l. The 96-hr no-effect level is 5.0 mg ai/l.

8. REVIEWER'S CONCLUSIONS: This study is scientifically sound, and satisfies the USEPA guidelines requirements for an acute toxicity test with an aquatic invertebrate. With a 48-hr LC_{50} of 6.7 mg ai/l, STAM Technical is moderately toxic to Daphnia magna.

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OK

MATERIALS AND METHODS

Protocol generally followed USEPA guidelines. Tests were run at 21° C. A precipitate was noted at concentrations exceeding 10 mg/l. The testing laboratory used data from these concentrations in the calculations of the LC_{50}s, but this reviewer did not. No significant change in the LC_{50}s was noted as a result of this deletion. Four replicates with 10 daphnids per chamber were run.

REPORTED RESULTS

Concentrations (mg ai/liter)	Mortalities No. Dead/No. Exposed 24 hrs	48 hrs
12.0	39/40	40/40
9.0	36/40	40/40
6.7	2/40	13/40
5.0	0/40	1/40
3.7	1/40	1/40
Solvent Control	0/40	1/40
Control	0/40	0/40
LC_{50} values (mg ai/l)	8.0	6.7

96-hr No-effect level = 5.0 mg ai/l

REVIEWER'S CONCLUSIONS:

Validation Category: Core

Category Rationale: N/A

Category Repairability: N/A

JOHNSTON STAM 24-HR LC50 - DAPHNIA MAGNA

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
9	40	36	90	0
6.7	40	2	5	0
5	40	0	0	0
3.7	40	1	2.5	0

THE BINOMIAL TEST SHOWS THAT 6.7 AND 9 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 7.86938

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
1	.0488538	7.86938	7.61468	8.14372

NO CONVERGENCE IN 25 ITERATIONS. THE PROBIT METHOD
PROBABLY CANNOT BE USED WITH THIS SET OF DATA.

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NOTE: BECAUSE THERE WAS CONTROL MORTALITY, AND NONE
OF THE LOWER CONCENTRATIONS PRODUCED ZERO MORTALITY,
THE DATA HAS BEEN SUBJECTED TO ABBOTT'S CORRECTION.

JOHNSTON STAM 48-HR LC50 DAPHNIA MAGNA

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
9	39.5	39.5	100	0
6.7	39.5	12.5	31.6456	0
5	39.5	.5	1.2658	0
3.7	39.5	.5	1.2658	0

THE BINOMIAL TEST SHOWS THAT 6.7 AND 9 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 7.11967

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.026767	6.92287	6.64032	7.2302

NO CONVERGENCE IN 25 ITERATIONS. THE PROBIT METHOD
PROBABLY CANNOT BE USED WITH THIS SET OF DATA.

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DATA EVALUATION

1. CHEMICAL: STAM M-4 (Stampede)

2. FORMULATION: Technical - 86.2% active ingredient

3. CITATION: Biospherics, Inc. (1982) The Acute Toxicity of STAM Technical to Bluegill Sunfish (Lepomis macrochirus); unpublished report submitted to EPA by Rohm and Hass Co., Philadelphia, Pa., 1/21/83

EPA Accession No. 249347 ✓

4. REVIEWED BY: Thomas B. Johnston
Fisheries Biologist, EEB/HED

5. REVIEW DATE: Feb. 28, 1983

6. TEST TYPE: Acute (96-hr) LC_{50} - Bluegill Sunfish

7. REPORTED RESULTS: The acute 96-hr LC_{50} of STAM Technical to bluegill sunfish is 5.4 mg ai/l. The 96-hr no-effect level is 3.0 mg ai/l.
CLS(4.5-7)

8. REVIEWER'S CONCLUSIONS: This study is scientifically sound, and satisfies the USEPA guidelines requirements for an acute toxicity test with a warmwater fish. With a 96-hr LC_{50} of 5.4 mg ai/l, STAM Technical is moderately toxic to bluegill sunfish.

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OK

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MATERIALS AND METHODS

Protocol generally followed USEPA guidelines. Tests were run at 22° C. A precipitate was noted at concentrations exceeding 10 mg/l. The testing laboratory used data from these concentrations in the calculations of the LC_{50}s, but this reviewer did not. No significant change in the LC_{50}s was noted as a result of this deletion.

REPORTED RESULTS

Concentrations (mg ai/liter)	Mortalities No. Dead/No. Exposed			
	24 hrs	48 hrs	72 hrs	96 hrs
10	6/10	6/10	10/10	10/10
7.0	1/10	1/10	10/10	10/10
4.5	0/10	0/10	0/10	1/10
3.0	0/10	0/10	0/10	0/10
1.8	0/10	0/10	0/10	0/10
Solvent Control	0/10	0/10	0/10	0/10
Control	0/10	0/10	0/10	0/10
LC_{50} values (mg ai/l)	9.4	9.4	5.6	5.4

96-hr No-effect level = 3.0 mg ai/l

REVIEWER'S CONCLUSIONS:

Validation Category: Core

Category Rationale: N/A

Category Repairability: N/A

JOHNSTON STAM 24-HR LC50 BLUEGILL SUNFISH

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	6	60	0
7	10	1	10	0
4.5	10	0	0	0
3	10	0	0	0
1.8	10	0	0	0

THE BINOMIAL TEST SHOWS THAT 7 AND 10 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 9.37068

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
1	.720682	9.37068	8.02048	19.649

NO CONVERGENCE IN 25 ITERATIONS. THE PROBIT METHOD
PROBABLY CANNOT BE USED WITH THIS SET OF DATA.

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JOHNSTON STAM 72-HR LC50 BLUEGILL SUNFISH

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	10	100	0
7	10	10	100	0
4.5	10	0	0	0
3	10	0	0	0
1.8	10	0	0	0

THE BINOMIAL TEST SHOWS THAT 4.5 AND 7 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 5.61249

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.

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JOHNSTON STAM 96-HR LC50 BLUEGILL SUNFISH

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	10	100	0
7	10	10	100	0
4.5	10	1	10	0
3	10	0	0	0
1.8	10	0	0	0

THE BINOMIAL TEST SHOWS THAT 4.5 AND 7 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 5.35697

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.

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