5741-25

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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

November 21, 2002

MEMORANDUM

Subject: Acute Toxicity Review for EPA Reg. No.: 5741-EL / Consume Bio-Bowl
DP Barcode: D285291

To: Adam Heyward, PM 34 / Anthia Peters
Regulatory Management Branch
Antimicrobials Division (7510C)

From: Ian Blackwell, Biologist
Efficacy Evaluation Team
Product Science Branch
Antimicrobials Division (7510C)

Through: Karen Hicks, Team Leader
Chemistry and Toxicology Team
Product Science Branch
Antimicrobials Division (7510C)

11-21-02

Michele E. Wingfield, Chief
Product Science Branch
Antimicrobials Division (7510C)

Applicant: Spartan Chemical Company, Inc.

FORMULATION FROM LABEL:

Active Ingredient(s):	% by wt.
Citric Acid	8.0
Other Ingredient(s):	92.0
Total:	100%

BACKGROUND: Spartan Chemical Company, Inc., has submitted a set of five acute toxicity/irritation studies to support the registration of their product, "Consume Bio-Bowl". Each of the five studies was conducted by Product Safety Laboratories. The MRID Numbers are 457423-02 through 457423-06.

These studies received a primary review by the EPA contractor Oak Ridge National Laboratory. A secondary review was conducted by PSB/AD to assure that the studies and reviews met OPP guidelines.

RECOMMENDATIONS: PSB findings are:

1. The acute oral toxicity, acute dermal toxicity, primary eye irritation, primary skin irritation and dermal sensitization studies are all acceptable.

2. No acute inhalation toxicity study was included in this submission. The submission did not include a request for the waiver of the acute inhalation toxicity study. (However, as the product contains over [redacted] water, it is questionable that there would be reason to request a waiver of the acute inhalation toxicity study.) The registrant must satisfy the requirement for an acute inhalation toxicity study for 5741-EL.

The acute toxicity profile for EPA File Symbol 5741-EL is currently:

acute oral toxicity	IV	Acceptable
acute dermal toxicity	IV	Acceptable
acute inhalation toxicity		Data Needed
primary eye irritation	III	Acceptable
primary skin irritation	IV	Acceptable
dermal sensitization	Nonsensitizer	Acceptable

LABELING:

No precautionary labeling can be prescribed for this product until the requirement for the acute inhalation toxicity study is satisfied.

MANUFACTURING PROCESS INFORMATION IS NOT INCLUDED

DATA EVALUATION RECORD

CITRIC ACID
(CONSUME BIO-BOWL)

STUDY TYPE: ACUTE ORAL TOXICITY - RAT
[OPPTS 870.1100 (§81-1)] OECD 401
MRID 45742302

Prepared for
Antimicrobials Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by
Toxicology and Hazard Assessment Group
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37831
Action No. K411

Primary Reviewer:
Susan Chang, M.S.

Signature: S. S. Chang
Date: October 10, 2002

Secondary Reviewers:
H. Tim Borges, M.T.(A.S.C.P.), Ph.D., D.A.B.T.

Signature: HT Borges
Date: October 10, 2002

Robert H. Ross, M.S., Group Leader

Signature: Robert H. Ross
Date: October 10, 2002

Quality Assurance:
Lee Ann Wilson, M.A.

Signature: L. A. Wilson
Date: October 10, 2002

Disclaimer

This review may have been altered subsequent to the contractor's signatures above.

Oak Ridge National Laboratory managed and operated by UT-Battelle, LLC., for the U.S. Department of Energy under Contract No. DE-AC05-00OR22725.

DATA REVIEW FOR ACUTE ORAL TOXICITY TESTING (§ 81-1, 870.1100)

Product Manager: Adam Heyward
MRID No.: 45742302

Reviewer: Susan Chang
Study Completion Date: May 3, 2002

Report No.: 11927

Testing Laboratory: Product Safety Labs
Author: Daniel J. Merkel

GLP Compliance Statement (40 CFR §160.12): Included

Test Material: Consume Bio-Bowl, Lot No. 031202T; light blue, viscous liquid
Dosage: 5000 mg/kg

Species: Sprague-Dawley rats (5 M and 5 F)
Weight: Males: 275-289 g, Females: 194-210 g
Source: Ace Animals, Inc., Boyertown, PA

Age: Young adult (10-11 weeks)

Summary:

1. **LD_{50} (mg/kg):** **Males** > 5000 mg/kg
   Females > 5000 mg/kg
   Combined > 5000 mg/kg
2. **The estimated LD_{50} is** > 5000 mg/kg.
3. **Tox. Category**: IV **Classification**: Acceptable

Procedure (Deviations from §81-1, 870.1100): None

Results:

Reported Mortality			
Dosage (mg/kg)	(Number Deaths/Number Tested)		
	Males	Females	Combined
5000	0/5	0/5	0/10

Observations: All animals survived and gained weight during the study. One male and one female had hunched posture and/or hypoactivity one day after dosing with recovery by day 3. The other animals appeared active and healthy throughout the study.

Gross Necropsy Findings: No gross abnormalities were noted.

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DATA EVALUATION RECORD

CITRIC ACID
(CONSUME BIO-BOWL)

STUDY TYPE: ACUTE DERMAL TOXICITY - RABBIT
[OPPTS 870.1200 (§81-2)] OECD 402
MRID 45742303

Prepared for
Antimicrobials Division
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DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (§81-2, 870.1200)

Product Manager: Adam Heyward
MRID No.: 45742303

Reviewer: Susan Chang
Study Completion Date: May 3, 2002

Report No.: 11928

Testing Laboratory: Product Safety Labs
Author: Daniel J. Merkel

GLP Compliance Statement (40 CFR §160.12): Included

Test Material: Consume Bio-Bowl, Lot No. 031202T; light blue, viscous liquid
Dosage: 5000 mg/kg

Species: Sprague-Dawley rats (5M and 5F)
Weight: Males: 253-292 g, Females: 166-188 g
Age: Young adult (9-11 weeks)
Source: Ace Animals, Inc., Boyertown, PA

Summary:

1. **LD_{50} (mg/kg)**: **Males** > 5000 mg/kg
   Females > 5000 mg/kg
   Combined > 5000 mg/kg
2. **The estimated LD_{50} is** > 5000 mg/kg.
3. **Tox. Category**: IV **Classification**: Acceptable

Procedure (Deviation From §81-2, 870.1200): No deviations were noted.

Results:

Reported Mortality			
Dosage (mg/kg)	(Number Deaths/Number Tested)		
	Males	Females	Combined
5000	0/5	0/5	0/10

Observations: All animals survived, gained weight, and all appeared active and healthy throughout the study. No dermal irritation was noted during the study.

Gross Necropsy Findings: No gross abnormalities were noted.

DATA EVALUATION RECORD

CITRIC ACID
(CONSUME BIO-BOWL)

STUDY TYPE: PRIMARY EYE IRRITATION - RABBIT
[OPPTS 870.2400 (§81-4) OECD 405
MRID 45742304

Prepared for
Antimicrobials Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by
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DATA REVIEW FOR PRIMARY EYE IRRITATION TESTING (§81-4, 870.2400)

Product Manager: Adam Heyward
MRID No.: 45742304

Reviewer: Susan Chang
Study Completion Date: May 3, 2002

Report No.: 11929

Testing Laboratory: Product Safety Labs
Author: Daniel J. Merkel

GLP Compliance Statement (40 CFR §160.12): Included

Test Material: Consume Bio-Bowl, Lot No. 031202T; light blue, viscous liquid
Dosage: 0.1 mL

Species: New Zealand White rabbits (1M and 2F)
Weight: Not reported
Age: Young adult
Source: Davidson's Mill Farm, South Brunswick, NJ

Summary:

1. **Toxicity Category**: III
2. **Classification**: Acceptable

Procedure (Deviations From §81-4, 870.2400): None.

Results:

Observations	Number "Positive"/Number Tested			
	Hour			
	1	24	48	72
Corneal Opacity	0/3	3/3	3/3	0/3
Iritis	0/3	1/3	0/3	0/3
Conjunctivae				
Redness	0/3	3/3	1/3	0/3
Chemosis	1/3	1/3	0/3	0/3
Discharge	3/3	3/3	1/3	0/3

DATA EVALUATION RECORD

CITRIC ACID
(CONSUME BIO-BOWL)

STUDY TYPE: PRIMARY SKIN IRRITATION - RABBIT
[OPPTS 870.2500 (§81-5)] OECD 404
MRID 45742305

Prepared for
Antimicrobials Division
Office of Pesticide Programs
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Arlington, VA 22202

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DATA REVIEW FOR PRIMARY SKIN IRRITATION TESTING (§81-5, 870.2500)

Product Manager: Adam Heyward
MRID No.: 45742305

Reviewer: Susan Chang
Study Completion Date: May 3, 2002

Report No.: 11930

Testing Laboratory: Product Safety Labs
Author: Daniel J. Merkel

GLP Compliance Statement (40 CFR §160.12): Included

Test Material: Consume Bio-Bowl, Lot No. 031202T; light blue, viscous liquid
Dosage: 0.5 mL

Species: New Zealand White rabbits (3M)
Weight: Not reported
Age: Young adult
Source: Davidson's Mill Farm, South Brunswick, NJ

Summary:

1. **Toxicity Category**: IV
2. **Classification**: Acceptable

Procedure (Deviations From §81-5, 870.2500): None

Results: Well defined erythema was noted on two rabbits one hour after patch removal that reduced to very slight erythema by 24 hours with clearance by 48 hours. Very slight erythema was noted on one rabbit one hour after patch removal with clearance by 24 hours. The primary dermal irritation index was 0.6.

DATA EVALUATION RECORD

CITRIC ACID
(CONSUME BIO-BOWL)

STUDY TYPE: SKIN SENSITIZATION - GUINEA PIG
[OPPTS 870.2600 (§81-6) OECD 406
MRID 45742306

Prepared for
Antimicrobials Division
Office of Pesticide Programs
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Prepared by
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Action No. K411

Primary Reviewer:
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Signature: S S Chang
Date: October 10, 2002

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Signature: HT Borges
Date: October 10, 2002

Robert H. Ross, M.S., Group Leader

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DATA REVIEW FOR DERMAL SENSITIZATION TESTING (§81-6, 870.2600)

Product Manager: Adam Heyward
MRID No.: 45742306

Reviewer: Susan Chang
Study Completion Date: June 6, 2002

Report No.: 11931

Testing Laboratory: Product Safety Labs
Author: Daniel J. Merkel

GLP Compliance Statement (40 CFR §160.12): Included

Test Material: Consume Bio-Bowl, Lot No. 031202T; light blue, viscous liquid
Positive Control Material: α-Hexylcinnamaldehyde (HCA)

Species: Hartley guinea pigs
Weight: Females: 323-390 g
Source: Elm Hill Breeding Labs, Chelmsford, MA
Age: Young adult

Method: Buehler

Summary:

1. **This product is not a dermal sensitizer.**
2. **Classification:** Acceptable

Procedure (Deviation From §81-6, 870.2600): None

Procedure: The dorsal area and flanks of 30 female guinea pigs were clipped on the day before initiation. For induction, 0.4 mL of undiluted test material was applied with an occlusive 25 mm Hilltop Chamber for six hours once each week for three weeks to the clipped area of 20 test animals. Twenty-seven days after the first induction, the animals were challenged with 0.4 mL of 50% w/w test material in distilled water under occlusion to naive sites for 6 hours. A naive control group (10 animals) was treated with 0.4 mL of 50% w/w test material in distilled water at challenge only. Reactions were scored 24 and 48 hours post exposure.

Results: No reaction was noted on any test animal after the first induction. Very faint erythema usually non-confluent was noted on 6/20 test animals 24 hours after the second induction with resolution on four animals by 48 hours. Twenty-four hours after the third induction, nine animals had very faint erythema usually non-confluent and one animal had faint erythema usually confluent. By 48 hours, four animals had very faint erythema usually non-confluent and one animal had faint erythema usually confluent. The test and naive control animals did not have positive reactions after challenge. The historical HCA positive control study had appropriate results.

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