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

February 4, 2004

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

**MEMORANDUM:**

**SUBJECT:** Review Requested Additional Fate Data for Didecyl dimethyl ammonium chloride (DDAC)

**TO:** Velma Noble, Product Manager, Team 31  
Regulatory Management Branch I  
Antimicrobials Division (7510C)

**FROM:** Srinivas Gowda, Microbiologist/Chemist *Srinivas Gowda 2/4/04*  
Risk Assessment and Science Support Branch (RASSB)  
Antimicrobials Division (7510C)

**THRU:** Siroos Mostaghimi, Acting Team Leader, Team One *Siroos Mostaghimi*  
Risk Assessment and Science Support Branch (RASSB)  
Antimicrobials Division (7510C)

Norm Cook, Chief *Norm Cook*  
Risk Assessment and Science Support Branch (RASSB)  
Antimicrobials Division (7510C)

**DP Barcode:** D297427

**Decision:** 48048

**PC Code:** 069149

**Case Type:** Resubmission

**Common Name:** DDAC, Bardac 22 (2250, 2280)

**Chemical Name:** Didecyl dimethyl ammonium chloride

**EPA Reg. No.:** None

**MRID No.:** 461243-02, 461243-03, & 461243-04

**Data Submitter:** Lonza Inc.

**CAS#:** 7173-51-5

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## **INTRODUCTION:**

Lonza Inc. has previously submitted the Aerobic Soil Metabolism, Anaerobic Aquatic Metabolism, and Aerobic Aquatic Metabolism studies (MRID numbers 422538-01, 422538-02, 422538-03) for the active ingredient, Didecyl dimethyl ammonium chloride (DDAC) to satisfy the U.S. Environmental Protection Agency's Environmental Fate Data Requirements published in the Pesticide Assessment Guidelines, Subdivision N, §162-1, 162-3, and 162-4. These studies were previously reviewed and accepted with the following comments by Srinivas Gowda of Antimicrobials Division's Risk Assessment and Science Support Branch:

**Aerobic Soil Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC).** (Guideline 835.4100/old 162-1). (MRID No. 422538-01): The study fulfills Guideline requirements, provided the registrant submits additional data demonstrating that aerobic conditions were maintained throughout the experiment. Under the conditions tested, the half-life of the compound in sandy loam soil was determined to be 1048 days (about 3 years). No major transformation products were formed.

**Anaerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC).** (Guideline 835.4400/old 162-3). (MRID No. 422538-02): The study fulfills Guideline requirements, provided the registrant submits information describing how the aerobic conditions were achieved and maintained. The anaerobic half-lives determined were 261 days in water, 4594 days (12.5 years) in sediment, and 6217 days (17 years) for the entire system. No major transformation products were formed.

**Aerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC).** (Guideline 835.4300/old 162-4). (MRID No. 422538-03): The study fulfills Guideline requirements, provided the registrant submits data demonstrating that aerobic conditions were achieved and maintained. The aerobic half-lives determined were 180 days in water, 22706 days (62.2 years) in sediment, and 8,366 days (22.9 years) in the entire system. No major transformation products were formed.

The current submission is a resubmission with the above requested additional data/information to complete the study reports submitted under the MRID numbers 422538-01, 422538-02, and 422538-03.

## **BACKGROUND:**

Didecyl dimethyl ammonium chloride (DDAC) is an active ingredient in various wood protection treatments.

## **CITATIONS:**

"Addendum to MRID No. 42253803-Aerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC)" OPPTS Guideline 835-4300, by Walter Cranor, Manager, Environmental Fate, ABC Laboratories, Inc., 7200 East ABC Lane, P.O. Box 1097, Columbia, Missouri 65205, dated August 6, 1991 (MRID Number 461243-02) has been submitted to the Agency to fulfil the Aerobic Aquatic Metabolism data requirements for the active ingredient, Didecyl dimethyl ammonium chloride.

"Addendum to MRID No. 42253802-Anerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl

dimethyl ammonium chloride (<sup>14</sup>C-DDAC)" OPPTS Guideline 835-4400, by Walter Cranor, Manager, Environmental Fate, ABC Laboratories, Inc., 7200 East ABC Lane, P.O. Box 1097, Columbia, Missouri 65205, dated August 6, 1991 (MRID Number 461243-03) has been submitted to the Agency to fulfil the Anaerobic Aquatic Metabolism data requirements for the active ingredient, Didecyl dimethyl ammonium chloride.

"Addendum to MRID No. 42253801-Aerobic Soil Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC)" OPPTS Guideline 835-4100, by Walter Cranor, Manager, Environmental Fate, ABC Laboratories, Inc., 7200 East ABC Lane, P.O. Box 1097, Columbia, Missouri 65205, dated August 6, 1991 (MRID Number 461243-04) has been submitted to the Agency to fulfil the Aerobic Soil Metabolism data requirements for the active ingredient, Didecyl dimethyl ammonium chloride.

#### **SUMMARY OF DATA:**

The submitted data/information completes and clarifies the study reports submitted under the MRID numbers 422538-01, 422538-02, and 422538-03. No additional data are required to be submitted. The study reports (MRID numbers 422538-01, 422538-02, and 422538-03) and the submitted additional data/information fulfills all of the guidelines specified by the Pesticide Assessment Guidelines, Subdivision N, §162-1, 162-3, and 162-4.

#### **RASSB's CONCLUSIONS AND RECOMMENDATIONS:**

**Aerobic Soil Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC). (Guideline 835.4100/old 162-1). (MRID No. 422538-01):** The study fulfills Guideline requirements for Aerobic Soil Metabolism. Under the conditions tested, the half-life of the compound in sandy loam soil was determined to be 1048 days (about 3 years). No major transformation products were formed. RASSB recommends that the Aerobic Soil Metabolism study on Didecyl dimethyl ammonium chloride (DDAC) be accepted.

**Anaerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC). (Guideline 835.4400/old 162-3). (MRID No. 422538-02):** The study fulfills Guideline requirements for Anaerobic Aquatic Metabolism. The anaerobic half-lives determined were 261 days in water, 4594 days (12.5 years) in sediment, and 6217 days (17 years) in the entire system. No major transformation products were formed. RASSB recommends that the Anaerobic Aquatic Metabolism study on Didecyl dimethyl ammonium chloride (DDAC) be accepted.

**Aerobic Aquatic Metabolism of <sup>14</sup>C-Didecyl dimethyl ammonium chloride (<sup>14</sup>C-DDAC). (Guideline 835.4300/old 162-4). (MRID No. 422538-03):** The study fulfills Guideline requirements for Aerobic Aquatic Metabolism. The aerobic half-lives determined were 180 days in water, 22706 days (62.2 years) in sediment, and 8,366 days (22.9 years) in the entire system. No major transformation products were formed. RASSB recommends that the Aerobic Aquatic Metabolism study on Didecyl dimethyl ammonium chloride (DDAC) be accepted.

cc: Srinivas Gowda/RASSB/AD

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