

US EPA ARCHIVE DOCUMENT

Shaughnessy No: 032201

Date Out of EAB: DEC 17 1987

To: Richard Mountfort
Product Manager #23
Registration Division TS-767C

From: Frank L. Davido, Section Chief
Field Studies and Special Projects
Exposure Assessment Branch
Hazard Evaluation Division TS-769C



Attached please find the EAB review of:

Reg./File No.: 239-2505

Chemical: Diquat Dibromide

Type Product: Herbicide

Product Name: Ortho Diquat Concentrate

Company Name: Chevron Chemical Co. - Ortho Agric. Chem. Division

Purpose: Registration-Permeability of Protective Gloves; Spray

Drift; and Droplet Spectrum

Action Code: 660

EAB #(s): 70320

Date Received: 3-12-87

TAIS Code: _____

Date Completed: 12/15/87

Total Reviewing Time: 24 hrs.

Monitoring study requested: _____

Monitoring study voluntarily: _____

Deferrals to: _____ Ecological Effects Branch
_____ Residue Chemistry Branch
_____ Toxicology Branch

CASREEL NO.:

—TO BE USED FOR REVIEW OF STUDIES PPA ONLY—

(FIELD STUDY) PACK No.: 31058

Confidential Business Information— Does Not Contain National Security Info. (E.O. 12065)

3-12-87 (RD PROVIDE) SHAGNESSY NO. 032201

CRITICAL NAME: DIQUAT DIBROMIDE

Identifying Number	Action Code	Reference Number	Record Number	Study Guideline or Narrative Description	Reg. Std. Review Submission Criteria (SEE BELOW)	Accession Number	(HED/BUD/TSS Complete) Study found to be Acceptable (A)/ Unacceptable(U) for review or reviewer comment
2392525	66D	6	91411	Glove Permeability	2	4006880	
				Spray Drift	2	40064502	
				Droplet Spectrum	2	40064501	

PRODUCT MANAGER (PM) or REVIEW MANAGER (RM) AND NUMBER: Richard Mountfort, PM 23 PM/RM TEAM MEMBER AND NUMBER: Christine Rice, Team 23

DATE RECEIVED (EPA): 2/11/87 RD BRANCH CHIEF INITIALS: [Signature]

CHECK APPLICABLE BOX:

Adverse 6(a)(2) Data (405,406) Product Specific Data (Reregistration) (655,656)

Suspect Data (415,416) Generic Data (Reregistration) (660,661)

IBT Data (485,486) Special Review Data (870,871)

AH

NUMBER OF INDIVIDUAL STUDIES SUBMITTED: _____

HAVE ANY OF THE ABOVE STUDIES (in whole or in part) BEEN PREVIOUSLY SUBMITTED FOR REVIEW? (circle: yes or no) If yes, please identify the study(ies): _____

RELATED ACTIONS: Pending review on reentry/protective clothing

INSTRUCTIONS: Please consider these in conjunction with pending review for 90-day response issues. The droplet spectrum study should be a concern to TOX since they are suggested to consider whether 21-day inhalation is required.

TO BE COMPLETED BY RSERB

DATE SENT TO HED/BUD/TSS: 3-12-87

PRIORITY NUMBER: 20

PROJECTED RETURN DATE: 5-12-87

DATE RETURNED TO RD (HED/BUD/TSS PROVIDE): _____

REVIEWERS SENT TO: Affn: Paul Mastrodome, Kurt Lunclik

HED: SIS TB RCB EAB EGB RD: TSS BUD: EAB SSB

TO:	TYPE OF REVIEW	NUMBER OF ACTIONS			FOR DATA SUBMITTED UNDER A REGISTRATION STANDARD: Review Submission Criteria
		Reregistration	Special Review	Other	
	Toxicology				Policy Note #31 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria 2 = data of particular concern 3 = data necessary to determine tiered testing requirements NOTE TO TSS: Return 1 Copy To RSERB
	Ecological Effects				
	Residue Chemistry				
	Exposure Assessment	3			
	Product Chemistry				
	Efficacy				
	Precautionary Labeling/Acute Tox.				
	Science Support				
	Economic Analysis				

INCLUDE AN ORIGINAL AND FOUR (4) COPIES OF THIS COMPLETED FORM FOR EACH BRANCH CHECKED FOR REVIEW.

REVIEW OF DIQUAT DIBROMIDE GLOVE
PERMEATION STUDY

I. OBJECTIVE

To test gloves for permeation resistance to diquat dibromide and ethylene dibromide.

II. TEST METHOD

ASTM 739-85, Standard Test Method for Resistance of Protective Clothing Materials to Permeation by Liquids or Gases

III. MATERIALS

One glove type was tested (viton)

IV. TEST PROCEDURE

Triplicate tests were conducted with two commercially available gloves (North Inc. F-124 and F-101) by the Radian Corp. in Austin, Texas for the Chevron Chemical Company. The permeation test was run for eight hours. UV Spectro-photometry was used to analyze for the diquat component. GC/EC was used to analyze for the ethylene dibromide.

V. RESULTS

The two gloves tested did not allow breakthrough of diquat or ethylene dibromide for the length of the test.

VI. REVIEWER'S COMMENTS

Generally, the very limited amount of testing appears to be satisfactory but the report is so brief that the reviewer really can't evaluate the results without additional information being supplied: for example:

- (1) What formulations were tested and what was the composition of each.

- (2) What are the solubilities of diquat and EDB in water? Did the test solutions and collecting medium meet the solubility criteria of Section 3.3 and 10.5.2.1 (F739-85)? What was the collecting medium?
- (3) Even though there was no breakthrough of diquat or EDB, were there any significant visual changes to the gloves.
- (4) What part of the gloves were used to test for chemical resistance?
- (5) In regard to Quality Assurance/Quality Control, more detail is needed since none is given.
- (6) The results should be reported as described in Section 13 (F739-85) where applicable.
- (7) In regard to selection of glove materials to be tested, only viton was tested. Viton is a good choice based solely on expected chemical resistance performance but based on cost to the pesticide user (29-86 dollars/a pair) it is an extremely poor choice.

I seriously doubt that diquat users will ever buy viton gloves, since they are about the most expensive glove around (assuming you can find them, which is another problem). The objective of the data call-in is to benefit pesticide users by generating performance data on a reasonable selection of glove types based on cost, disposability, style, comfort, availability and expected chemical resistance. Materials to be tested could be: neoprene; natural, nitrile or butyl rubber; PVC; polyethylene; Silver Shield^R etc. A pesticide user could buy several pairs of these gloves for the price of one pair of viton gloves. Also there is no evidence to demonstrate that viton will outlast some of the other, less expensive glove types, anyway.

VII. CONCLUSIONS

This study is classified as Supplemental for the reasons listed in VI. Basically the test methodology appears to

be satisfactory, but the very limited amount of testing that was done does not satisfy the data requirements, particularly for the pesticide user community.

Reviewed by:

A handwritten signature in cursive script that reads "Alan Nielsen".

Alan P. Nielsen
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

DEC 15 1987