

US EPA ARCHIVE DOCUMENT

031301

Shaughnessy No.: 031301

Date OUT OF EAB: 22 OCT 1984

JML

To: Jacoby
Product Manager 21
Registration Division (TS-767)

From: Lionel A. Richardson, Chief
Environmental Chemistry Review Section 3
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

Lionel A. Richardson

Attached, please find the EAB review of:

Reg./File No.: 1023-57

Chemical: DCNA

Type Product: F

Product Name: Botran

Company Name: Up john

Submission Purpose: Registration Standard

ZZB Code: ?

Action Code: 660

Date In: 8/14/84

EAB No.: 4512

Date Completed: _____

TAIS (Level II)

Days

Deferrals To:

42

1

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

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DCNA ADDENDUM

**TASK 1: REVIEW AND EVALUATION
OF INDIVIDUAL STUDIES**

Contract No. 68-01-6679

Final Report

October 18, 1984

SUBMITTED TO:

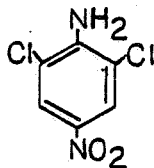
**Environmental Protection Agency
Arlington, Virginia 22202**

SUBMITTED BY:

**Dynamac Corporation
Enviro Control Division
The Dynamac Bldg.
11140 Rockville Pike
Rockville, MD 20852**

Table of Contents

DCNA, ALLISAN, BOTRAN, DICHLORAN,
DICLORAN, DITRANIL, RESISAN



2,6-Dichloro-4-nitroaniline

DCNA

Study

1

Jaglan, P.S., and T.S. Arnold. 1983. Hydrolysis study of ¹⁴C-Dichloran in aqueous buffered solutions at 25 C.

CASE GS0113

DCNA

STUDY 1

PM 08/23/82

CHEM 031301

DCNA

BRANCH EFB

DISC --

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID No MRID CONTENT CAT 01

Jaglan, P.S., and T.S. Arnold. 1983. Hydrolysis study of ¹⁴C-Dichloran in aqueous buffered solutions at 25 C. Technical Report No. 218-9760-83-002. Unpublished study received July 12, 1984 under 1023-57; submitted by The Upjohn Company, Kalamazoo, MI. Accession No. 253963.

SUBST. CLASS =

DIRECT RVW TIME = 3 1/2 (MH) START-DATE

END DATE

REVIEWED BY: L. Lewis

TITLE: Staff Scientist

ORG: Dynamac Corp., Enviro Control Division, Rockville, MD

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DATE: Oct. 5, 1984

APPROVED BY:

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SIGNATURE:

DATE:

CONCLUSIONS:

Degradation - Hydrolysis

1. This study is scientifically valid.
2. [¹⁴C]DCNA, at 2 ppm, was stable to hydrolysis in aqueous buffered solutions (pH 5, 7, and 9; 0.05 M and 0.01 M) incubated at 25 C in darkness.
3. This study fulfills EPA Data Requirements for Registering Pesticides (1983) by providing information showing that DCNA is stable to hydrolysis for up to 72 days at pH 5, 7, and 9.

MATERIALS AND METHODS:

Sterile, distilled water was buffered to pH 5, 7, and 9, and 500-ml samples at two concentrations (0.05 M and 0.01 M) were treated with uniformly ring-labeled [^{14}C]DCNA (Dichloran, specific activity 2.98 mCi/mM, >99% pure, New England Nuclear) at 2 ppm. The buffer solutions were prepared as follows: pH 5 - $\text{KHC}_8\text{H}_4\text{O}_4$, 10.212 g/l (0.05 M) containing 22.6 ml of 1 N NaOH (0.0226 M) ionic strength 0.173; pH 7 - KH_2PO_4 , 6.800 g/l (0.05 M) containing 29.1 ml of 1 N NaOH (0.0291 M) ionic strength of 0.079; and pH 9 - K_3BO_3 , 6.183 g/2 l (0.05 M) containing 7.456 g KCl (0.05 M) and 41.6 ml of 1 N NaOH (0.05 M) ionic strength 0.121. The buffered, treated solutions were incubated in the dark at 25 ± 1 C. Duplicate 25-ml aliquots were taken at 0, 3, 7, 14, 21, 37, and 72 days after treatment.

The samples were extracted with methylene chloride in a separatory funnel, the layers were allowed to separate, and the radioactivity in each layer was quantified using LSC. The detection limit was 0.01 ppm. Aliquots of the methylene chloride phase were quantified using electron capture GLC.

REPORTED RESULTS:

Total radioactivity in all samples did not change appreciably during the 72-day test period (Table 1). From day 3 to day 72, extractable radioactivity ranged from 1.67 to 2.05 ppm. Values for day 0 were as low as 1.36 ppm, indicating incomplete dissolution of the [^{14}C]DCNA in the buffered solutions. Radioactivity was detected only in four samples of the aqueous phase, at 0.01 ppm. DCNA concentrations were consistently lower (~5%) than values for total radioactivity, but did not decrease appreciably over the test period (Table 2).

DISCUSSION:

Recovery values for the analytical methods used were not reported. The detection limit for the GLC method was not reported.

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Table 1. Total radioactivity (ppm) in water (pH 5, 7, and 9) treated with [^{14}C]DCNA, at 2 ppm, and incubated at 25 ± 1 C in darkness.^a

Sampling interval (days)	0.05 M			0.01 M		
	pH 5	pH 7	pH 9	pH 5	pH 7	pH 9
0	1.61	1.87	1.61	1.46	1.68	1.91
	1.57	1.36	1.63	1.38	1.51	1.53
3	1.77	1.81	1.86	1.86	1.84	1.76
	1.72	1.73	1.82	1.81	1.76	1.67
7	1.80	1.78	1.83	1.86	1.85	1.78
	1.80	1.88	1.87	1.90	1.84	1.83
14	1.80	1.83	1.88	1.83	1.84	1.74
	1.86	1.80	1.85	1.86	1.87	1.85
21	1.86	1.85	1.88	1.82	1.85	1.82
	1.86	2.05	1.84	1.85	1.86	1.82
37	1.80	1.80	1.80	1.81	1.82	1.72
	1.84	1.84	1.82	1.84	1.78	1.79
72	1.87	1.90	1.90	1.85	1.91	1.90
	1.93	1.93	1.96	1.94	1.88	1.93

^a Values represent radioactivity in the methylene chloride extracts; radioactivity in the aqueous phase was < 0.01 ppm at any sampling interval.

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Table 2. DCNA concentrations (ppm) in water (pH 5, 7, and 9) treated with [^{14}C]DCNA at 2 ppm, and incubated at 25 C in darkness.

Sampling interval (days)	0.05 M			0.01 M		
	pH 5	pH 7	pH 9	pH 5	pH 7	pH 9
0	1.48	1.74	1.42	1.42	1.50	1.71
	1.48	1.42	1.71	1.48	1.50	1.40
3	1.64	1.71	1.73	1.71	1.71	1.71
	1.68	1.64	1.66	1.66	1.71	1.54
7	1.80	1.72	1.68	1.80	1.80	1.75
	1.75	1.80	1.77	1.82	1.82	1.72
14	1.73	1.78	1.78	1.71	1.66	1.69
	1.59	1.59	1.61	1.61	1.69	1.61
21	1.86	1.84	1.81	1.74	1.77	1.77
	1.79	1.77	1.77	1.70	1.72	1.68
37	1.82	1.78	1.75	1.82	1.78	1.78
	1.71	1.66	1.71	1.69	1.66	1.64
72	1.82	1.72	1.82	1.75	1.74	1.72
	1.69	1.63	1.69	1.75	1.77	1.69

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