

US EPA ARCHIVE DOCUMENT

840

035602
Shaughnessy No.

Date out of EAB: 15 NOV 1983

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

From: Richard V. Moraski, Ph.D., Acting Chief
Environmental Chemistry Review Section 1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769c)

R.M.

Attached please find the EAB review of...

Reg./File No.: 476 - EEEI

Chemical: Dazomet

Type Product: Fungicide/Bactericide

Product Name: N-521 PAC

Company Name: Stauffer

Submission Purpose: new use

ZBB Code: other

ACTION CODE: 175

Date In: 9/16/83

EFB # 3540

Date Completed: 11/15/83

TAIS (level II)

Days

Deferrals To:

62

1

Ecological Effects Branch

Residue Chemistry Branch

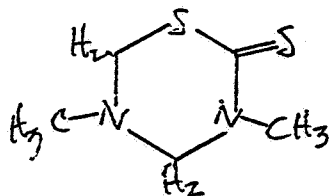
Toxicology Branch

1.0 INTRODUCTION

Chemical Name and Type of Pesticide: tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione, 24% ai, fungicide/bactericide

Trade Name: N-521 PAC Fungicide/Bactericide

Chemical Structure:



Stauffer Chemical is applying for the registration of N-521 PAC to control the growth of slime-forming fungi and bacteria in aqueous systems (pulp and paper mills and slurries of adhesives, glues, etc.).

2.0 DIRECTIONS FOR USE

See attached label.

3.0 DISCUSSION OF DATA

3.1 HYDROLYSIS

3.1.1 N-521 hydrolysis data, appendix 8, Acc. #251207.

Experimental Procedure

The hydrolysis of N-521 (Mylone) was studied at four pH values at 25°C in buffered solutions: pH 4.96, 7.38, 9.05, and 10.8. In addition, the major hydrolysis product, MIT (methyl isothiocyanate) was also tested at pH 4.96 and 10.8. Analysis was by HPLC and the procedure followed is shown below:

A one milliliter aliquot of the buffered, thermostated test solution was placed in a vial, extracted with 1-mL of p-toluenesulfonanilide internal standard solution (in methylene chloride), dried, and analyzed by HPLC using the following experimental conditions.

Liquid Chromatograph: Waters Associates M-6000 A

Column: 30 cm x 3.9 mm I.D. stainless steel column packed with 10 um u-Porasil (Waters Associates Part No. 27477).

Guard Column: Waters Associate Guard Column (Part No. 84550) packed with Corasil II.

Mobile Phase: 5 V% tetrahydrofuran in methylene chloride. Burdick and Jackson LC- grade solvents used without further purification.

Flow Rate: 1.5 mL/minn

Column Pressure: 550 PSIG, with high sensitivity noise filter in flow-path.

Detector: DuPont Model 842 UV-photometer, at 0.32 AUFS.

Injector: Rheodyne Model 70-10 sample injection valve with a 20-ul sample loop.

Data Acquisition: Varian CDS 111 computing-integrator.

Recorder: Linear Instruments Model 785; chart speed 16 inches per hour.

Results

Table 1 gives the rate constants and half-lives of N-521 and MIT at the pH values tested. Figure 1 gives a graphic presentation of the hydrolysis data for N-521. Figures 2-4 show the HPLC results. MIT was the major hydrolysis product, but did not accumulate more than 10% for the period tested (could not be determined). N-521 and MIT were more stable in acid than basic solutions.

Conclusion

The study is unacceptable for the following reasons:

1. The concentration of the fungicide tested was not given.
2. Sterility of water and glassware not indicated.
3. Type and concentration of buffer used not indicated.
4. A material balance was not given.
5. An explanation of how half-lives were determined was not given.
6. Sampling times for buffers at pH 9.05 and 10.08 difficult to determine.
7. Unknown if buffers stored in dark.
8. Ordinate axis on graph of hydrolysis curves not understood.

4.0 RECOMMENDATIONS

- 4.1 EAB objects to the registration of N-521 PAC as a preservative of aqueous solutions on the basis of the unacceptable hydrolysis study reviewed above (section 3.1.1).

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