

Cover Sheet for

ENVIRONMENTAL CHEMISTRY METHOD

Pesticide Name: Fenhexamid

MRID #: 443467-37

Matrix: Water

Analysis: HPLC/UV

This method is provided to you by the Environmental Protection Agency's (EPA) Environmental Chemistry Laboratory (ECL). This method *is not* an EPA method but one which was submitted to EPA by the pesticide manufacturer to support product registration. EPA recognizes that the methods may be of some utility to state, tribal, and local authorities, but makes no claim of validity by posting these methods. Although the Agency reviews *all* Environmental Chemistry Methods submitted in support of pesticide registration, the ECL evaluates only about 30% of the currently available methods. Most methods perform satisfactorily but some, particularly the older methods, have deficiencies. Moreover, the print quality of the methods varies considerably because the methods originate from different sources. Therefore, the methods offered represent the best available copies.

If you have difficulties in downloading the method, or further questions concerning the methods, you may contact Elizabeth Flynt at 228-688-2410 or via e-mail at flynt.elizabeth@epa.gov.

443467-37

TM-402 (KBR 2738) VOLUME NUMBER

EPA
43

CALIFORNIA
43

CANADA

DATA REQUIREMENT(S)

EPA AND CALIFORNIA

850.1000:
Analytical Method

CANADA

8.2.2.3:
Water

TITLE

METHOD FOR DETERMINATION OF KBR 2738
IN TEST WATER FROM AQUATIC TESTS BY HLPC

AUTHOR(S)

THOMAS KÖNIG

REPORT COMPLETION DATE

NOVEMBER 22, 1994

LABORATORY

BAYER AG, CROP PROTECTION-DEVELOPMENT
INSTITUTE FOR METABOLISM RESEARCH AND RESIDUE ANALYSIS
D-51368 LEVERKUSEN, GERMANY

**BAYER
REPORT NUMBER**

MR-624-94 AND
METHOD 00376

**TOMEN
REPORT NUMBER**

TMN-019A

**LABORATORY
STUDY NUMBER**

NOT APPLICABLE

SUBMITTER

TM-402 (KBR 2738) Fungicide Task Force
Comprised of Tomen Agro Inc. and Bayer Corporation
EPA Consortium No. 69436

4pg. 1 B 11

STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS
METHOD FOR DETERMINATION OF KBR 2738
IN TEST WATER FROM AQUATIC TOXICITY TESTS BY HPLC

No claims of confidentiality are made for any information in this study on the basis of its falling within the scope of FIFRA §10(d)(1)(A), (B) or (C).

This report is the property of Bayer AG and Bayer Corporation.

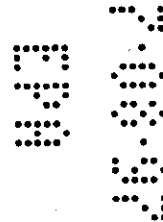
Submitter:

Desmond Byrne

3/6/97

Date

Dr. Desmond Byrne
Manager, Registrations and Regulatory Affairs
Tomeo Agro, Inc.
For the TM-402 (KBR 2738) Fungicide Task Force

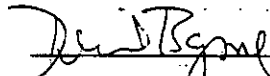


GOOD LABORATORY PRACTICE STATEMENT
METHOD FOR DETERMINATION OF KBR 2738
IN TEST WATER FROM AQUATIC TOXICITY TESTS BY HPLC

This study is descriptive and is not subject to the requirements of 40 CFR Part 160.

This report is the property of Bayer AG and Bayer Corporation.

Submitter:



Dr. Desmond Byme
Manager, Registrations and Regulatory Affairs
Tomen Agro, Inc.
For the TM-402 (KBR 2738) Fungicide Task Force

13/6/97

Date

Appendix 1.

Bayer AG
Crop Protection-Development
Institute for Metabolism Research
and Residue Analysis

Monheim, November 22, 1994
Dr. Th. König / mg
MR-624/94
Method 00376 (English Version)

Method for determination of KBR 2738 in test water from aquatic
toxicity tests by HPLC.

Thomas König

Summary

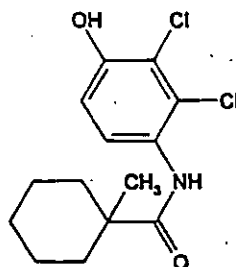
The method describes the determination of KBR 2738 in water from aquatic toxicity tests by HPLC with UV-detection. The water samples are directly injected into the HPLC. The lower limit of the practical working range is 0.01 mg/L.

1. Introduction

The method was elaborated for the determination of KBR 2738 in test water from aquatic toxicity tests.

- 1.1 The active ingredient KBR 2738 is used as fungicide and has the following chemical and physical properties:

Structural formula



Chemical designation : N-(2,3-dichloro-4-hydroxy-phenyl)-1-methyl-cyclohexanecarboxamide

Empirical formula : C₁₄H₁₇Cl₂NO₂

Molecular weight : 302.3 g/mole

Solubility : Water 20 mg/l (20°C)
Acetone 160 g/l (20°C)

2. Principle of the method

The active ingredient is determined by HPLC with UV-detection. The water samples are directly injected into the HPLC instrument or after appropriate dilution with water.

3. Instruments

Liquid chromatograph : HP 1090 with diode-array-detector
Hewlett Packard Co.,
61352 Bad Homburg, FRG

Comparable instruments of other manufacturers may be used alternatively.

Volumetric flasks, pipettes and other common laboratory equipment.

4. Reagents

Water : deionized and cleaned in a Milli-Q-unit
Acetonitrile : G-Chromasolv, Merck Co., 64293 Darmstadt,
Art. 409930

Sodium dihydrogen-
phosphate-2-hydrate : Riedel-de-Haën, 30926 Seelze, Art. 04269

Reference substance : KBR 2738

A satisfactorily characterized and certified substance is used as reference substance. First a stock solution of about 1000 mg/l in acetonitrile is prepared with the reference substance. The standard solution to be used is prepared by diluting the stock solution with Milli-Q-water.

5. Performance of the analyses

The water samples are injected into the HPLC instrument directly or after appropriate dilution with Milli-Q-water.

Chromatographic conditions

Column : Lichrospher Select B, length 125 mm; i.d. 4 mm,
Merck Co., 64293 Darmstadt
Particle size : 5 µm
Oven temperature : 40°C
Injection volume : 250 µl*
Flow rate : 2 ml/min.
Mobile phase : Water (with 1 g NaH₂PO₄/l) : acetonitrile, 50:50 (v:v)
Wavelength : 210 nm
Retention time : about 2.0 min.

* The injection volume can be adapted to the concentrations to be measured, if necessary.

6. Evaluation

The evaluation is made by means of a laboratory data system via comparison of the peak areas of the sample with the peak areas of the external standard solutions. The active ingredient content of the sample can be evaluated according to the following formula:

$$R = \frac{A_p \times C_s}{A_s}$$

R = Active ingredient content of the sample (mg/l)
A_p = Peak area of the sample solution (area counts)
A_s = Peak area of the standard solution (area counts)
C_s = Concentration of the standard solution (mg/l)

7. Limit of determination

The lower limit of the practical working range of the method is 0.01 mg/l.

8. Linearity

The linearity of the detector was checked for KBR 2738 in the range from 0.01 to 10 mg/l. The resulting curve is represented in Figure 5. The correlation coefficient was 0.99978.

9. Safety Instructions

The German Guidelines for laboratories of the Trade Cooperative Association (e.g. Bulletin M006) or comparable guidelines in other countries must be taken into consideration when working following this method.

The following solvents and plant protectants being classified as toxic and/or low toxic according to the Hazardous Substances Regulation are used. This classification is based on German Guidelines and must be adapted to the respective national guidelines if the method is used outside of Germany.

Toxic: Acetonitrile

10. Figures

1. Chromatogram standard 1 mg/l
2. Chromatogram standard 0.01 mg/l
3. Chromatogram water sample (nominal concentration 1 mg/l)
4. Chromatogram blank value
5. Linearity of KBR 2738 in the range from 0.01 mg/l to 10 mg/l

The experiments were carried out by Mr Michael Götze.

Dr. Th. König

Figure 1: Chromatogram Standard 1 mg/l

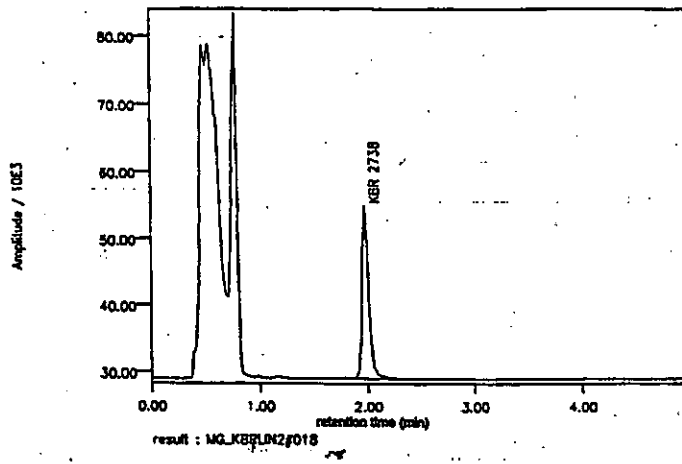


Figure 2: Chromatogram Standard 0.01 mg/l

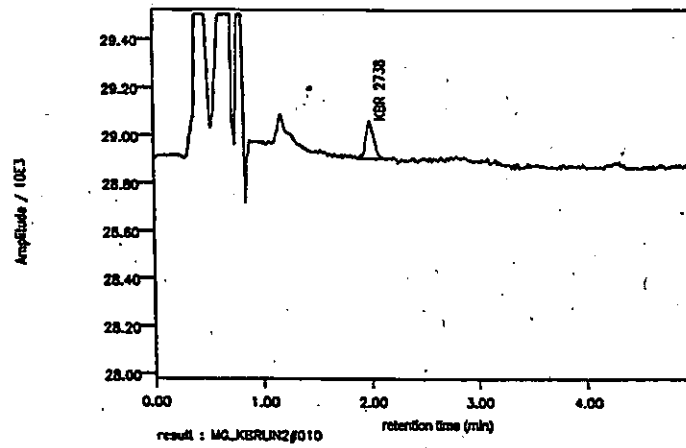


Figure 3: Chromatogram water sample (nominal concentration 1 mg/l)

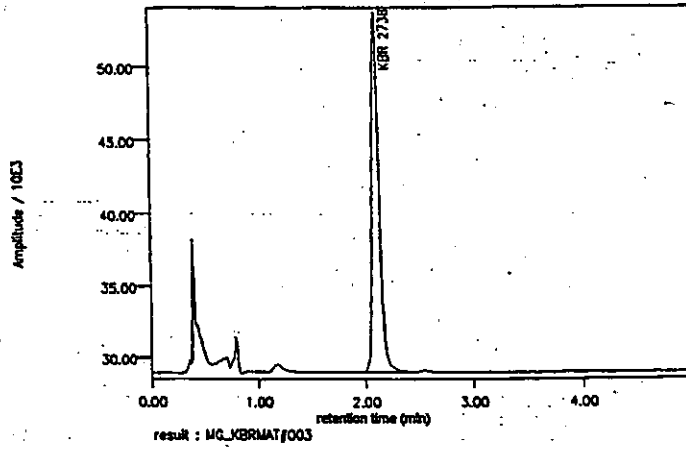


Figure 4: Chromatogram blank value

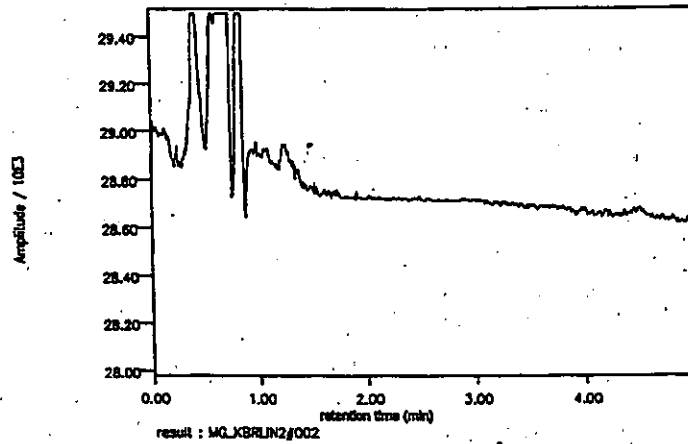


Figure 5: Linearity of KBR 2738 in the range from 0.01 mg/l to 10 mg/l

