Shaughnessy No.: 111601

Date Out of EAB: 27 JUL 1984

To: Dick Mountfort
Product Manager 23
Registration Division (TS-767)

From: Samuel Creeger, Chief
Review Section #1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

Attached, please find the EAB review of...

Reg./File # : 707-145 and -174

Chemical Name: Oxyfluorfen

Type Product : Herbicide

Product Name : GOAL 2E and GOAL 1.6E

Company Name : Rohm & Haas

Purpose : Label Amendment: use in establishment of conifer and hardwood plantings. Also, new Soil Metabolism study.

ZBB Code : 3(c)(5)

EAB #(s) : 4375,4376

Action Code(s): 315

TAIS Code: ~~60~~ 63

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Deferrals to:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

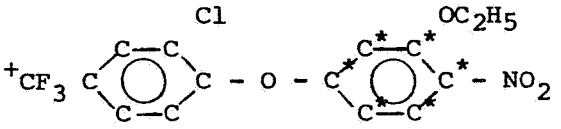
(1)

1.0 INTRODUCTION

Rohm and Haas has requested an amendment to the GOAL 1.6 and 2E labels (707-174 and 707-145) to include use on Conifer-Seedbeds, Transplant/Container stock, and field establishment of conifers and hardwoods.

Also, additional data have been submitted (Accession 253312) to support the anaerobic soil, anaerobic aquatic and aerobic aquatic data requirements.

2.0 STRUCTURE



2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-trifluoromethylbenzene

("+" and "*" denote ^{14}C label in CF_3 and nitrophenyl ring, respectively. NOTE: In the study reviewed §4.0, below, the radiolabel was in its respective compound.)

3.0 DIRECTIONS FOR USE

Copies of the supplemental labelling are appended to this review. GOAL® 1.6E is currently registered for use on almond, apricot, cherry, fig, nectarine, peach, pear, pistachio, plum, prune, corn, walnut, grapes, cotton, fallow bed, spearmint, peppermint and soybean.

The amended labelling appears to be consistent with existing usage.

4.0 SUBMITTED DATA

Peirson, W.M. and J.D. Fisher. 1978. Metabolism of RH-2915 in Aerated and Non-Aerated Flooded Soil. Technical Report No. 34H-78-2. Spring House Research Laboratories, Rohm and Haas Company (Company Confidential), Philadelphia, PA. February 14, 1978 19 pages, 10 tables, Appendix

Introduction

The fate of RH-2915 (oxyfluorfen, hereinafter referred to as RH) in soil typical of a rice-growing region was evaluated in both aerated and non-aerated flooded soil.

Experimental

Two radiolabeled compounds were used in this study, as follows:

Test Substance	Abbreviated Reference	Sp. Activ. (mCi/gm)	DPM/ug
Trifluoromethyl ^{14}C-labeled	RH-CF_3	3.84	8525
Nitrophenyl ^{14}C-labeled	RH-NO_2	2.61	5794

Purity of the compounds used was not specified.

The soil used in this study, a Loessail Plains Clay Loam, was taken from a farm in Arkansas. Properties are summarized in report table I, appended to this review. Soil was passed thru a #10 (2mm) screen, and 100gms aliquotted to each of 14-500ml glass containers. The soil in each flask was then flooded with 300 ml tap water, and allowed to sit for 1 week.

At the conclusion of the equilibration period, 10 of the 14 flasks were aerated. For each of the two RH labels, flasks were designated day 0, week 1, 3, 6 and 12 aerated, and weeks 3 and 12 non-aerated (total of 14).

The test compounds were amended, to simulate Emulsifiable Concentrate formulations, as follows:

Component	% by Wgt
RH	26.0
[redacted]	

A simulated 1 lb ai/acre treatment (reportedly an exaggerated rate for actual rice use) was made to each vessel based on actual surface area - computations confirmed, by applying 0.43 mg ai in the EC formulation in sufficient volume of water.

Apparently, no attempt was made to trap and quantify volatiles. At the designated times, duplicate 2ml aliquots of water were taken for LSC quantification. Combustion efficiency was determined via comparision with a ^{14}C-sodium benzoate spike.

At the conclusion of the experiment, supernatant was decanted, centrifuged, aliquotted and radiomaterials quantified by LSC. Soils were freeze dried and similarly analyzed. Glass from each flask was extracted with methanol, and radioresidues quantified by LSC.

INERT INGREDIENT INFORMATION IS NOT INCLUDED

Concentrates of each of the aformentioned extracts were spotted on F254 silica gel plates, and cochromatographed against the standards listed in report table II, appended to this review. Radioactive spots were located by radioautography and nonlabeled material by UV visualization. Quantification of the radioresidues was by scraping, and LSC.

Results and Discussion

In the aerated portion of the experiment, water radiolevels decreased from 45.1% and 28.9% at day 0 to 3.3% and 4.5%, for the CF_3 and NO_2 labels, respectively, at week 12. During this same period, soil radiolevels remainined fairly constant at from 45.2% and 61.5% on day zero to 48.4% and 60.0%, respectively, with the remaining radiomaterial becoming associated with the test container.

In the non-aerated portion of the experiment, the majority of the radiomaterial remained bound to the soil (94.5% and 94.6%, respectively).

The distribution of soil radiocomponents is summarized in report table VII, appended to this review. Throughout the 12 week experimental period, unknown #1 did not exceed 1.6% of the total radiomaterial. It is apparent from the data that traps for radiovolatiles were not necessary.

From the data in report table VII, this reviewer estimated half-life of RH in the soil to be from 120 to 130 weeks.

Conclusions

Under the conditions of the experiment, RH became rapidly bound to either the soil or container, and degraded very slowly thereafter. Except for parent RH, no single component was found to exceed 2% of the total radioresidues.

5.0 CONCLUSIONS

The study reviewed in 4.0 above was carefully done, appears well supported by the submitted LSC counting data, and is adequate to support the Anaerobic Soil (§162.2), Anaerobic Aquatic (§162.3) and Aerobic Aquatic (§162.4) data requirements of Subpart N.

EAB has no objection to the proposed label amendments.

Emil Regelman
Chemist
EAB/HED
July 25, 1984

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