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EFGWB Out :
SEP 14 1992

TO: Linda Propst
Product Manager PM 73
Special Review and Reregistration Division (H7508W)

FROM: Akiva D. Abramovitch, Ph.D., Head
Environmental Chemistry Review Section #3
Environmental Fate & Ground Water Branch/EFED (H7507C)

THRU: Henry Jacoby, Chief
Environmental Fate & Ground Water Branch/EFED (H7507C)

FOR AA

Attached, please find the EFGWB review of...

Reg./File # :029001

Common Name :1,3-D

Product Name :Telone

Company Name :DowElanco

Purpose :To review protocols on adsorption/desorption and soil column leaching studies as well as to respond to comments on a meeting that took place on April 1, 1992 between DowElanco and USEPA.

Type Product :Sterilant Action Code: 635 EFGWB #(s): 92-0863,0792 Review Time: 1.0 days

EFGWB Guideline/MRID/Status Summary Table: The review in this package contains...

161-1		162-4		164-4		166-1	
161-2		163-1	PROTOCOLS (no MRID)	164-5		166-2	
161-3		163-2		165-1		166-3	
161-4		163-3		165-2		167-1	
162-1		164-1		165-3		167-2	
162-2		164-2		165-4		201-1	
162-3		164-3		165-5		202-1	

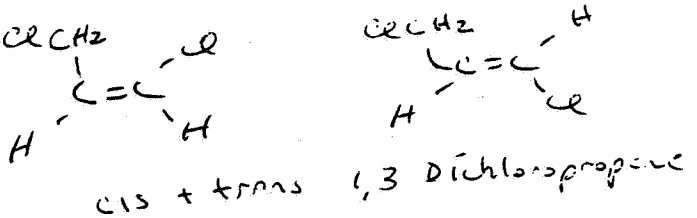
Y = Acceptable (Study satisfied the Guideline)/Concur P = Partial (Study partially satisfied the Guideline, but additional information is still needed)
S = Supplemental (Study provided useful information, but Guideline was not satisfied) N = Unacceptable (Study was rejected)/Non-Concur

1. CHEMICAL:
Common Name: 1,3-Dichloropropene, 1,3-D

Chemical Name: 1,3-Dichloropropene

Type of product: Nematicide/Fungicide/Herbicide/Insecticide

Chemical Structure:



Physical/Chemical Properties
molecular weight: 110.9
aqueous solubility: 218 ppm
vapor pressure: 27.3 torr

2. TEST MATERIAL:

N/A

3. STUDY/ACTION TYPE:

To review minutes of a meeting that took place April 1, 1992 with the USEPA and DowElanco on the Aerobic Soil Metabolism, Aged Column Leaching of 1,3-Dichloropropene, and 1,2-Dichloropropane Leaching studies.

To review an adsorption/desorption and soil column leaching protocol for 1,2-Dichloropropane.

4. STUDY IDENTIFICATION:

(1) Letter from T. Craig Blewett DowElanco dated April 21, 1992 to Herman Toma SRRD (H7508C) (received by the agency 4/29/92) titled: Summary of April 1, 1992 meeting with the U.S. EPA on Aerobic Soil Metabolism, Aged Column Leaching of 1,3-Dichloropropene, and 1,2-Dichloropropane Leaching studies.

(2) Letter from T. Craig Blewett DowElanco dated May 5, 1992 to Herman Toma SRRD (H7508C) titled: RE: Protocol for 1,2-D Leaching Study.

5. REVIEWED BY:

Kevin L. Poff, Chemist
Environmental Chemistry Review Section #3
Environmental Fate and Groundwater Branch/EFED

Date:

6. APPROVED BY:

Akiva Abramovitch, Ph.D., Chemist
Environmental Chemistry Review Section #3
Environmental Fate and Groundwater Branch/EFED

Date: For AA. Sept. 10, 1992

7. CONCLUSIONS:

Summary of April 1, 1992 meeting:

1. The EFGWB concurs with the items discussed on the Aerobic Soil Metabolism, Aged Column Leaching of 1,3-Dichloropropene, and 1,2-Dichloropropane leaching studies during the April 1, 1992 meeting that took place with the USEPA and DowElanco.

Specific items covered were:

A) Discussion of the kinetics of 1,3-D in the aerobic soil metabolism studies on Catlin silt loam and Fuquay sandy loam soils. This study has been delayed by one component not meeting internal GLP standards. Degradation on Catlin soil had a half-life of 13 days versus 43 days on the Fuquay soil. Mass balance on both soils was 85-88%.

B) Discussion of the major metabolites in the aerobic soil metabolism study known to date. In the Catlin soil 3-chloroallyl alcohol was not detected in acetone extracts until the Day 30 sample. Degradation was considered very rapid. The cis-isomer of 3-chloroacrylic acid degraded more rapidly with a maximum concentration at 7 days that the trans-isomer which had a maximum concentration at 20 days. In the Fuquay soil a degradation profile for 3-chloroallyl alcohol is incomplete at this time due to sampling currently in progress. Concentrations of the cis and trans-isomers of 3-chloroacrylic acid are steady but at much lower concentrations than in the Catlin soil. Other metabolites are carbon dioxide, propionic acid, acetic acid and possibly oxalic acid. Additional metabolites appear to be present at concentration less than 1 ppm. Acid and base extractable residues have been detected in both soils. Although the degradation profiles are comparable between the two soils, the relative concentrations of the metabolites differ. This may be due to the relative soil moisture contents of the two soils.

C) Summarization of Bound Residues in the aerobic soil metabolism study. Unextractable bound residues comprised approximately 30% of the applied radioactivity in the Catlin soil and 20% in the Fuquay soil.

D) Discussion on Aged Column Leaching study. The Fuquay sandy loam has been used for this study. After one month of incubation, the bulk of the remaining ^{14}C on the column was still present in the treated, aged portion of the column. The Kd for 1,3-D was > 10 if only the volume of leachate was used and > 18 if linear approximation of leachate values were used. The identification of the aerobic soil metabolites is delaying the completion of the study. The aged column leaching study was expected to be submitted by August 31, 1992.

E) Discussion of the 1,2-D leaching study. It was proposed to the Agency that the 1,2-D leaching study be conducted as a batch

adsorption/desorption study on four soils and a column leaching study on the Fuquay sandy loam. The proposed study would provide more information on the leaching potential than a column-only study. The EFGWB requested that a protocol be provided for review before the end of April. A cover letter explaining why the study should be conducted as proposed will be included with submission of the protocol.

F) Discussion of report submission dates. The date of submission of the aerobic soil metabolism study may be delayed due to problems in identification of the soil metabolites. The Agency requested that the reports for both soils be submitted at the same time. A final report is expected to be submitted by October 31, 1992.

Protocol for 1,2-D Leaching and Ads/Des Studies:

1. The EFGWB has no objections to the use of these protocols to conduct the soil column leaching study and the adsorption/ desorption study on 1,2-Dichloropropane (1,2-D). The protocols are too general to provide specific suggestions and criticisms.

8. RECOMMENDATIONS:

1. Inform the registrant that the EFGWB concurs with the items discussed at the April 1, 1992 meeting with DowElanco and the US EPA.

2. The EFGWB has no objections to the use of the proposed protocols for the soil column leaching study and the adsorption/desorption study on the contaminant 1,2-dichloropropane.

9. BACKGROUND :

On April 1, 1992 a presentation was made by Fred Batzer of DowElanco to members of the EPA on specific items of an undergoing aerobic soil metabolism study and aged soil column leaching study on 1,3-Dichloropropene. The protocol for the 1,2-Dichloropropane Leaching study was also discussed. The protocol was reviewed above and found to be too general to make specific comments on, however, it was noted in the letter from T. Craig Blewett DowElanco that comments must be received by July 13, 1992 otherwise DowElanco will assume the protocol was acceptable and proceed with the batch equilibrium studies.

Dichloropropene is a nematicide/fungicide/insecticide/herbicide registered for preplant application to terrestrial food crop (field and vegetable crop and orchard crop) and terrestrial nonfood (nursery stock and tobacco) use sites. Application rates range from 38.3 to 1067.6 lb. ai/A. Dichloropropene is formulated as a single active ingredient only as a 94% RTU. In multiple active ingredient formulations, it may be combined with methyl isothiocyanate, chloropicrin, methyl isothiocyanate plus chloropicrin, and methyl bromide. Dichloropropene may be applied prior to planting by chisel injection into a planting hole during

backfilling. The specific application technique is determined by use site and equipment availability. Applicators must be certified or under direct supervision of applicators certified to apply dichloropropene.

10. DISCUSSION:
N/A

11. COMPLETION OF ONE-LINER:
N/A

12. CBI INDEX:
N/A