1-21-88

DATA EVALUATION RECORD

CASE GS0073 2,4-D STUDY 6 PM --

CHEM 030001 2,4-D

BRANCH EAB DISC --

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID 00116625 CONTENT CAT 01

McCall, P, S. Vrona, and S. Kelley. 1981. Fate of uniformly carbon-14 ring-labeled 2,4,5-trichlorophenoxyacetic acid and 2,4-dichlorophenoxyacetic acid. Source unknown. Also In unpublished submission received Oct. 21, 1982 under 11683-EX-2; submitted by U.S. Dept. of the Interior, Washington, DC; CDL: 248614-U.

SUBST. CLASS = S.

DIRECT RVW TIME = 6 (MH) START-DATE END DATE

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CONCLUSIONS:

Metabolism - Aerobic Soil

This study is acceptable and fulfills EPA Data Requirements for Registering Pesticides by providing information on the aerobic metabolism of ring-labeled [^{14}C]2,4-D (2,4-dichlorophenoxyacetic acid) in soil.

SUMMARY OF DATA BY REVIEWER:

Ring-labeled [^{14}C]2,4-D (2,4-dichlorophenoxyacetic acid; radiochemical purity 97.6%, specific activity 9.61 mCi/mMol, Mallinckrodt Nuclear), at 1 ppm, degraded with a half-life of <8 days (calculated 4 days) in six soils, ranging in texture from sandy loam to clay, that were incubated in the dark at 75% of 0.3 bar moisture and 25°C. The major 2,4-D degradate in all soils was CO_2. After 7-21 days, little 2,4-D remained in the soil; the remainder occurred as part of the humic acid, fulvic acid, or humin fractions. At the final sampling (day 51 in the loam and silty clay loam, and day 150 in the sandy loam, silt loam, clay loam, and clay soils), 0.7-2.5% of the applied was 2,4-D, 49.1-82.8% had been

evolved as CO_2, 9.3-20.9% was NaOH-extractable, and 3.9-22.3% was unextractable. Except for CO_2, no degradates >0.01 ppm were identified.

DISCUSSION:

1. Phosphoric acid-extractable [^{14}C]residues were not characterized, although they comprised up to 0.15 ppm in the sandy loam soil and up to 0.05 ppm in all other soils. Since the guidelines require aerobic dissipation data for only one soil and the phosphoric acid-extractable fraction did not appear to be increasing at the end of the study, sufficient information is provided by this study to fulfill data requirements.

2. The detection limit and recovery values from fortified soil samples were not reported.

3. The CEC of the soils was not reported.