12-3-90

DATA EVALUATION RECORD

STUDY 1

CHEM 128974 Quinclorac §161-1

FORMULATION--00--ACTIVE INGREDIENT

STUDY ID 40320816
Eswein, R.P. 1987. Hydrolysis of BAS 514-H in pH 5, 7, and 9 solutions at 25 °C. BASF Registration Document # 87/5038. Unpublished study performed and submitted by BASF Corporation, Research Triangle Park, NC/Parsippany, NJ.

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This study was originally reviewed by EFGWB. The review has been reformated for inclusion in the Registration Standard by Dynamac Corporation; the conclusions are those of the EFGWB reviewer and were not altered by Dynamac.

CONCLUSIONS:

Degradation - Hydrolysis

1. This study is acceptable and fulfills EPA Data Requirements for Registering Pesticides by providing information that [3-^{14}C]quinclorac did not hydrolize at pH 5, 7 and 9 at 25 °C.

2. No additional data on the hydrolysis of quinclorac are required at this time.

METHODOLOGY:

[3-^{14}C]Quinclorac (radiochemical purity >99%, specific activity 9.78 mCi/mMol, BASF Corporation) plus unlabeled quinclorac were dissolved in pH 5, 7, and 9 buffer solutions (pH 5, 0.01 M acetate buffer; pH 7 and 9, 0.05 M borate buffer) to make a final concentration of approximately 50 ppm. The three solutions were sonicated, then 5-mL subsamples were filter-sterilized (0.22-micron) while being introduced into sterile serum bottles. The bottles were sealed with sterilized septa and incubated in the dark in a growth chamber at 25 ± 1 °C. Three bottles of each pH solution were removed for analysis at 0, 69, 161, 400, and 737 hours posttreatment.

Aliquots from each solution were analyzed without extraction for total radioactivity using LSC and for specific compounds using HPLC with a methanol:0.075 M sodium acetate solvent gradient and with UV (254 nm) and radioactive flow detection. In addition, the 737-hour samples were acidified to pH 2 and extracted with ethyl acetate. Aliquots of the ethyl acetate extracts were analyzed by LSC. Additional aliquots of the ethyl acetate extracts were evaporated to dryness under nitrogen at 40 °C; the resulting residue was dissolved in methanol, methylated by bubbling with diazomethane, evaporated to dryness, and redissolved in acetone. The acetone solution was analyzed by GC with nitrogen detection.

DATA SUMMARY:

[3-^{14}C]Quinclorac (radiochemical purity >99%), at approximately 50 ppm, was stable in aqueous buffered pH 5, 7, and 9 solutions that were incubated at 25 °C in the dark for 737 hours. At 737 hours posttreatment, quinclorac comprised ≥98% of the applied in the three buffer solutions and was the only [^{14}C]compound detected (Tables II, III, and IV). At the conclusion of the study, the material balance for the three solutions was 98-110% of the applied (Table I).

REVIEWERS COMMENTS:

1. Recovery values from fortified samples and method detection limits were not reported.

2. The water solubility of quinclorac was reported to be 62 ppm.

3. At the conclusion of the study, the pH of the three solutions was determined to be 5.0, 7.1, and 8.9 (Table I).