PC 900497

DATA EVALUATION RECORD 1

Lee, K.S. 1989. R-25788 - Hydrolysis study at 25 and 40 °C. Report No. WRC 89-10. Unpublished study performed and submitted by ICI Americas Inc., Richmond, CA. MRID# 415614-09

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SIGNATURE:

CONCLUSIONS:

Degradation - Hydrolysis

1. This study is acceptable and fulfills EPA Data Requirements for Registering Pesticides by providing information on the hydrolysis of R-25788 in sterile aqueous buffer solutions at pH 5, 7, and 9. No additional information on the hydrolysis of R-25788 at pH 5, 7, and 9 is required at this time.

2. R-25788 did not hydrolyze in sterile aqueous buffer solutions that were adjusted to pH 5, 7, or 9 and incubated in the dark at 25 C for 29 days.

METHODOLOGY:

R-25788 (2,2-dichloro-N,N-di-2-propenylacetamide; purity 99.4%, ICI Americas) was added at a nominal concentration of 33 mg/L to sterile, aqueous 0.025 M buffer solutions that had been adjusted to pH 5 (phthalate), pH 7 (phosphate), or pH 9 (borate). Aliquots of each test solution were pipeted into individual Teflon-sealed, screw-top test tubes; the tubes were incubated in a thermostated waterbath in the dark at 25 ± 0.5 C for up to 29 days. Single sample tubes at each pH were removed for analysis at 0, 3.7, 7.7, 14.7, 21.7, and 28.8 days posttreatment.

Each test solution was extracted once with a toluene solution containing butylate as an internal standard. Extracts were analyzed for R-25788 using GC with N/P detection.

DATA SUMMARY:

R-25788 (2,2-dichloro-N,N-di-2-propenylacetamide; purity 99.4%), at approximately 33 mg/L, did not hydrolyze in sterile pH 5, 7, or 9 buffered solutions that were incubated in the dark at 25 ± 0.5 C for 29 days (Table III). In the three solutions, R-25788 was present at ≥32.4 mg/L (≥99% of the applied) at all sampling intervals.

COMMENTS:

1. Data were provided from a similar hydrolysis study in which the test solutions were incubated at 40 C. In this experiment, R-25788 was stable in the pH 5 and 7 solutions, and degraded only slightly (approximately 10% of the applied) in the pH 9 solution during 29 days of incubation (Table IV). Since this experiment was conducted at 40 C, these data are not pertinent to the Subdivision N guidelines and were not reviewed in detail.

2. Copies of chromatograms from the GC analyses were not provided.

3. Actual pHs of the buffered solutions after addition of R-25788 and at the end of the study were not provided.

4. Application rates used to determine material balances were adjusted by the study author for the initial purity of R-25788.

Table III - R-25788 HYDROLYSIS STUDY RESULTS AT 25°C

Time (days)	Concentration of R-25788 (mg/L) pH 5	pH 7	pH 9
0.0	34.0	33.7	34.0
3.7	33.3	32.8	32.9
7.7	34.7	32.6	32.5
14.7	34.0	33.3	33.7
21.7	33.0	32.4	32.4
28.8	33.7	33.0	33.0

Table IV - R-25788 HYDROLYSIS STUDY RESULTS AT 40°C

Time (days)	Concentration of R-25788 (mg/L) pH 5	pH 7	pH 9
0.0	34.3	33.7	33.7
3.7	32.9	32.7	32.9
7.7	32.8	32.3	31.9
14.7	34.0	33.3	31.9
21.7	--	32.4	30.4
28.8	34.0	32.8	30.2