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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



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MEMORANDUM

SUBJECT: Review of Interim Summary of a Cloransulam-methyl (EPA Registration Number 62719-275) Aerobic Degradation Study in Soils Collected from the Indiana Flumetsulam Prospective Groundwater Study Site.

FROM: E. Laurence Libelo, Ph.D. Environmental Engineer
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TO: Philip Errico
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THROUGH: Mah Shamim, Ph.D., Chief
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Analysis of the preliminary data submitted shows that there is a statistically significant difference in the aerobic soil metabolism reaction rate constants measured on soil from the control plot and flumetsulam-treated. Mean rate constants for the control plot and the treated site were 0.0403 (sd.= 0.0037) and 0.0417 (sd.= 0.00273) respectively. These correspond to calculated half-lives of 17.2 and 16.6 days, a difference of about 3.5%.

Based on this study the soil at the site has been affected by prior studies conducted at the site. Degradation of cloransulam-methyl was significantly faster on soils previously treated with flumetsulam. However, the measured effect is small, and does not necessarily preclude reusing the site for the proposed Prospective Groundwater Study. The difference in degradation rates, while statistically significant, is small relative to the variation in soil metabolism rates observed in studies on soils from different areas. Care should be taken to consider these results in the analysis and interpretation of the proposed groundwater study.

Information on the degradation products should be included in the final report.

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Control Plot			Treated Plot		
Site	Rate Constant	R ²	Site	Rate Constant	R ²
Control 1	0.037	1	Treated 1	0.041	0.99
Control 2	0.035	0.99	Treated 2	0.040	1
Control 3	0.040	1	Treated 3	0.044	0.99
Control 4	0.044	0.98	Treated 4	0.046	0.99
Control 5	0.042	0.99	Treated 5	0.039	0.98
Control 6	0.044	0.99	Treated 6	0.040	0.99
Mean	0.0403 0.403		Mean	0.0417	
SD	0.00372		SD	0.00273	

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t-test

Thursday, March 18, 1999, 10:35:45

Data source: Data 1 in Notebook

Normality Test: Passed (P > 0.200)

Equal Variance Test: Passed (P = 0.404)

Group Name	N	Missing	Mean	Std Dev	SEM
control k	6	0	-0.0403	0.00372	0.00152
flumetsulam tre	6	0	-0.0417	0.00273	0.00112

Difference 0.00133

t = 0.707 with 10 degrees of freedom. (P = 0.496)

99 percent confidence interval for difference of means: -0.00464 to 0.00731

The difference in the mean values of the two groups is greater than would be expected by chance; there is a statistically significant difference between the input groups (P = 0.496).

Power of performed test with alpha = 0.050: 0.050

The power of the performed test (0.050) is below the desired power of 0.800. You should interpret the negative findings cautiously.

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