DATA EVALUATION RECORD

STUDY 2

CHEM 080808 Propazine §163-1

FORMULATION--00--ACTIVE INGREDIENT

STUDY ID 436898-03
Perdue, D. 1995a. Column Leaching of [^{14}C]Propazine in Four Soil Types Following Aerobic Aging. Project No. 855. Report No. 1660. Unpublished study performed PTRL East, Inc., Richmond, KY, and submitted by Griffin Corporation, Valdosta, GA.

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CONCLUSIONS:

Mobility -- Aged Column Leaching

1. This study is acceptable and partially fulfills EPA Data Requirements for Registering Pesticides by providing information on the mobility (column leaching) of aerobically-aged propazine in sandy loam, sand, loam, and silty clay soil samples.

2. The mobility of propazine and/or its degradates, applied at a rate of 5 ppm to four soils and aged for 30 days, varied with soil type and, possibly, column packing. An average of 2% (sandy loam) to 19% (sand) of the applied radioactivity was collected in the leachate. While the majority of the applied radioactivity remained in the 0-6 cm soil sections, ranging from 52% (loam) to 84% (sandy loam), radioactive residues were detected in each of the column sections, indicating some redistribution of the aged propazine residues during the leaching process. Propazine was the only ^{14}C-residue identified in the leachate fractions and was the dominant residue in the 0-6 cm column sections.

3. No additional information of the mobility of aged propazine residues in soil is required at this time. Acceptable information on the mobility (batch equilibrium) of unaged propazine has been provided in other studies (See MRID 436898-04, Study 3 of this submission, as well as previously accepted studies 0015299-6, -7).

METHODOLOGY:

Soil Samples: Surface samples of a sandy loam soil from Fayette County, KY, and sand, loam, and silty clay soils from Madison County, KY, were collected for the study (see Table I for soil sample characterization) (Comment 1). At the start of the study, soil viability was evaluated using trypticase soy (for bacteria), actinomycete isolation, and potato dextrose (for fungi) agars (Table II).

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Aging Process: Ring-labeled [^{14}C]-propazine [6-chloro-N,N'-bis(1-methylethyl)-1,3,5-triazine-2,4-diamine; radiochemical purity 97.9%, specific activity 104.4 uCi/mg] was applied at a rate of 5.1 ppm (Comment 2) to sieved (<2 mm) soil samples that were adjusted to 75% of 0.33 bar moisture content and incubated at 25°C for 3 days. The treated samples were aged in the dark at 25 ± 0°C and 75% of 0.33 bar soil moisture content for 30 days (Comment 3). The stoppered flasks were flushed with air at 14 and 30 days. Duplicate samples of each soil type were sampled at 0, 14, and 30 days; volatiles and CO_2 were collected at 14 and 30 days using a

STUDY AUTHOR'S RESULTS AND CONCLUSIONS

INCLUDING PERTINENT TABLES AND FIGURES

Table I. Physicochemical Characteristics of Soils. (a)

Parameter	Sand (b)	Sandy Loam (c)	Loam (d)	Silty Clay (e)
PTRL East, Inc. Log No.	U-3	Q-2	R-2	V-1
pH	7.6	6.8	7.6	5.9
Texture Class				
% Sand	91.2	67.0	48.4	8.8
% Silt	6.0	23.0	32.4	44.0
% Clay	2.8	10.0	19.2	47.2
Field Capacity (f)	2.8	15.1	23.5	32.2
Organic Carbon (%)	0.25	1.00	1.71	1.36
CEC (g)	2.0	5.5	17.2	16.6
Bulk Density (g/cm3) (h)	1.20	1.24	1.51	1.46

(a) The sandy loam was collected from horizon A in Fayette County, Kentucky. The sand, loam and silty clay were collected from horizon A in Madison County, Kentucky. Physicochemical characteristics of sandy loam determined by PTRL East, Inc., Richmond, Kentucky and sand, loam and silty clay by A & L Great Lakes Laboratories, Inc., Fort Wayne, Indiana.

(b) USDA soil series classification: Sand from Kickapoo fine sandy loam series.

(c) USDA soil series classification: Sandy loam from Huntington silt loam series.

(d) USDA soil series classification: Loam from Huntington silt loam series.

(e) USDA soil series classification: Silty clay from Eden Silty Clay loam series.

(f) Based on ml water/100g dry soil at 0.33 bar.

(g) Cation exchange capactiy.

(h) Determined on undisturbed sandy loam by the College of Agriculture, University of Kentucky, Lexington, Kentucky and on undisturbed sand, loam and silty clay by PTRL East, Inc., Richmond, Kentucky.

Table II. Microbial Characterization of Sand, Sandy Loam, Loam and Silty Clay Evaluated by Enumerating the Total Colony Forming Units (CFU).

	Soil Type			
	CFU/g (a)			
At Start of Study (b)	Sand	Sandy Loam	Loam	Silty Clay
Aerobic Bacteria	5.4E+05	4.8E+06	2.1E+07	1.5E+06
Actinomycetes	2.8E+04	1.2E+07	2.2E+07	2.0E+06
Fungi	1.2E+04	1.4E+04	1.6E+04	1.2E+04

(a) Colony Forming Units per gram of soil.
(b) Sand, sandy loam, loam and silty clay soils used for aging and for leaching sand, sandy loam, loam and silty clay soil columns, respectively.

Table III. Distribution of Radiocarbon Extracted From and Remaining on Sand Throughout the Aging Period.

	Total DPM Present In:						
Sample/ Replicate	Acetonitrile/Water (Extract 1)(a)	%(b)	Methanol/Ammonium Hydroxide Reflux (Extract 2)(c)	%(b)	DPM Remaining on Soil(d)	%(b)	Total % Recovered(e)
Day 0/A	53,516,035	89.8	109,764	0.2	51,344	0.1	90.1
Day 0/B	54,331,682	91.2	240,783	0.4	66,476	0.1	91.7
Day 14/A	49,455,263	83.0	1,413,222	2.4	3,057,781	5.1	90.5
Day 14/B	49,419,124	82.9	1,276,452	2.1	3,590,510	6.0	91.1
Day 30/A	49,258,724	82.7	1,631,910	2.7	7,101,368	11.9	97.3
Day 30/B	47,992,037	80.5	1,750,140	2.9	5,307,362	8.9	92.4

(a) Acetonitrile:water (9:1, v:v) shake and reflux extractions pooled.
(b) Based on 59,594,144 dpm applied per flask.
(c) Methanol:ammonium hydroxide (1:1, v:v) reflux.
(d) Includes dpm remaining on filter.
(e) Includes dpm from gas dispersion traps.

Table IV. Distribution of Radiocarbon Extracted From and Remaining on Sandy Loam Throughout the Aging Period.

Sample/ Replicate	Total DPM Present In: Acetonitrile/Water (Extract 1)(a)	%(b)	Methanol/Ammonium Hydroxide Reflux (Extract 2)(c)	%(b)	DPM Remaining on Soil(d)	%(b)	Total % Recovered(e)
Day 0/A	58,304,337	97.8	NA(f)	-	271,066	0.5	98.3
Day 0/B	56,340,377	94.5	NA	-	307,560	0.5	95.1
Day 14/A	51,390,880	86.2	1,408,319	2.4	4,664,029	7.8	96.4
Day 14/B	50,458,455	84.7	1,412,151	2.4	4,633,056	7.8	94.8
Day 30/A	50,010,300	83.9	1,450,083	2.4	6,434,106	10.8	97.1
Day 30/B	49,709,732	83.4	1,710,101	2.9	6,923,963	11.6	97.9

(a) Acetonitrile:water (9:1, v:v) shake and reflux extractions pooled.
(b) Based on 59,594,144 dpm applied per flask.
(c) Methanol:ammonium hydroxide (1:1, v:v) reflux.
(d) Includes dpm remaining on filter.
(e) Includes dpm from gas dispersion traps.
(f) Not applicable.

Table V. Distribution of Radiocarbon Extracted From and Remaining on Loam Throughout the Aging Period.

Sample/ Replicate	Total DPM Present In: Acetonitrile/Water (Extract 1)(a)	%(b)	Methanol/Ammonium Hydroxide Reflux (Extract 2)(c)	%(b)	DPM Remaining on Soil(d)	%(b)	Total % Recovered(e)
Day 0/A	59,325,132	99.5	NA(f)	-	275,017	0.5	100.0
Day 0/B	60,565,564	101.6	NA	-	585,639	1.0	102.6
Day 14/A	51,363,411	86.2	1,177,129	2.0	4,365,633	7.3	95.5
Day 14/B	51,641,782	86.7	1,157,255	1.9	4,087,608	6.9	95.5
Day 30/A	45,647,587	76.6	1,592,386	2.7	8,329,155	14.0	93.2
Day 30/B	47,160,663	79.1	1,831,420	3.1	8,708,916	14.6	96.8

(a) Acetonitrile:water (9:1, v:v) shake and reflux extractions pooled.
(b) Based on 59,594,144 dpm applied per flask.
(c) Methanol:ammonium hydroxide (1:1, v:v) reflux.
(d) Includes dpm remaining on filter.
(e) Includes dpm from gas dispersion traps.
(f) Not applicable.

Table VI. Distribution of Radiocarbon Extracted From and Remaining on Silty Clay Throughout the Aging Period.

Sample/ Replicate	Total DPM Present In: Acetonitrile/Water (Extract 1)(a)	%	Methanol/Ammonium Hydroxide Reflux (Extract 2)(b)	%	DPM Remaining on Soil(c)	%	Total % Recovered(d)
Day 0/A(e)	53,516,717	98.0	803,822	1.5	239,044	0.4	99.9
Day 0/B(e)	53,944,408	98.8	277,252	0.5	110,947	0.2	99.5
Day 14/A(f)	24,830,500	90.9	1,116,866	4.1	2,522,972	9.2	104.2
Day 14/B(f)	26,191,231	95.9	969,505	3.5	2,344,042	8.6	108.0
Day 30/A(g)	46,010,971	77.2	2,340,301	3.9	8,602,060	14.4	95.6
Day 30/B(g)	46,901,100	78.7	2,469,601	4.1	8,390,315	14.1	96.9

(a) Acetonitrile:water (9:1, v:v) shake and reflux extractions pooled.
(b) Methanol:ammonium hydroxide (1:1, v:v) reflux.
(c) Includes dpm remaining on filter.
(d) Includes dpm from gas dispersion traps.
(e) Based on 54,622,381 dpm applied per flask (mean value of silty clay, Day 0, Replicates A and B, subsample oxidations).
(f) Based on 27,311,191 dpm applied per flask (mean value of silty clay, Day 0, Replicates A and B, subsample oxidations, per 25 g of soil).
(g) Based on 59,594,144 dpm applied per flask.

Table XI. Bulk Density, Void Volume, Total Soil Weight, Vp and Kd of Each Soil Column.

	Sand		Sandy Loam		Loam		Silty Clay	
	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B
Bulk Density (g/ml)	1.41	1.36	1.20	1.25	1.13	1.15	1.20	1.15
Void Volume (ml)	244	237	272	268	268	265	273	260
Soil Column (g)	857	826	727	763	686	699	729	700
Vp (a) (ml)	3187.1	4770.6	25,650.0	38,392.9	2,645.1	2,831.5	8,836.2	6,393.8
Kd (b)	3.43	5.49	34.91	49.97	3.47	3.67	11.75	8.76
Mean Kd	4.46		42.44		3.57		10.26	

(a) Volume of water required to leach one-half of the applied radiocarbon through the column.

(b) Distribution coeffficient (ml/g).

Table XII. Soil Section Weights and Leachate Fraction Volumes.

Soil Section Weights (g)	Sand (U-3) (a)		Sandy Loam (Q-2) (a)		Loam (R-2) (a)		Silty Clay (V-1) (a)	
	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B
0-6 cm	274.06	275.90	233.75	246.47	241.47	239.22	254.14	249.74
6-12 cm	215.32	213.85	201.99	219.23	184.92	191.29	191.39	199.72
12-18 cm	213.08	213.20	204.77	202.05	187.24	193.68	197.39	185.98
18-24 cm	216.41	215.33	203.39	202.04	192.01	195.19	210.35	206.45
24-30 cm	231.80	195.84	206.73	213.45	213.46	201.18	204.25	174.85
Total	1150.67	1114.12	1050.63	1083.24	1019.10	1020.56	1057.52	1016.74
Leachate Fraction Volumes (ml)	**Sand**		**Sandy Loam**		**Loam**		**Silty Clay**	
	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B	Rep A	Rep B
1	252	253	253	213	247	254	258	260
2	264	249	242	250	248	267	239	257
3	264	285	233	252	232	249	257	255
4	259	253	298	360	294	255	271	251
Total	1039	1040	1026	1075	1021	1025	1025	1023

(a) PTRL East, Inc. Soil Log No.

Table XVII. Accountablilty of Radiocarbon Present in 0-6 cm Column Sections From Each Soil Type.

Sample/ Replicate/ Section	DPM Applied in Section (a)	Total DPM Present In: Acetonitrile/Water (Extract 1)(b)	%(c)	Methanol/ Ammonium Hydroxide Reflux (Extract 2)(d)	% (c)	DPM Remaining on Soil (e)	% (c)	Total DPM Recovered	Total % Recovered
Sand									
Rep A									
0-6 cm	48,323,295	37,635,059	77.9	1,879,175	3.9	6,184,537	12.8	45,698,771	94.6
Rep B									
0-6 cm	48,581,586	38,301,784	78.8	2,511,749	5.2	6,676,663	13.7	47,490,196	97.8
Sandy Loam									
Rep A									
0-6 cm	52,052,103	42,188,603	81.1	1,912,552	3.7	7,302,491	14.0	51,403,646	98.8
Rep B									
0-6 cm	48,673,315	38,652,658	79.4	2,057,334	4.2	7,964,057	16.4	48,674,049	100.0
Loam									
Rep A									
0-6 cm	31,282,752	23,623,223	75.5	1,791,553	5.7	8,388,300	26.8	33,803,076	108.1
Rep B									
0-6 cm	30,337,066	21,083,894	69.5	1,247,618	4.1	6,538,987	21.6	28,870,499	95.2
Silty Clay									
Rep A									
0-6 cm	44,990,030	37,274,815	82.9	2,299,611	5.1	7,976,411	17.7	47,550,837	105.7
Rep B									
0-6 cm	41,538,773	32,837,513	79.1	2,116,147	5.1	7,736,170	18.6	42,689,830	102.8

(a) Determined by combustion analysis of five 0.50g aliquots of soil.
(b) Acetonitrile:water (9:1, v:v) shake and reflux extracts pooled.
(c) Based on dpm applied in column section.
(d) Methanol:ammonium hydroxide (1:1, v:v) reflux.
(e) Includes dpm remaining on extraction filter.

RESULTS AND DISCUSSION

Radiochemical Purity of [^{14}C]Propazine

The radiochemical purity of [^{14}C]propazine as determined by HPLC was 98.44% (mean of two injections) prior to the addition of the test material to the test system. Radiochemical purity was also determined by HPLC analysis following completion of column extractions (98.45%) thus demonstrating stability at the test site. Radiochromatograms and peak integration summaries for these analyses are presented in Figures 8, 9 and 10. Non-radiolabeled reference standards, Figures 3 - 7, were analyzed qualitatively by HPLC prior to initiation and following the last sampling interval to establish their stability at the test site for the duration of the study.

Maintenance of Treated Soil Samples for Aging

Incubator temperatures are presented in Table XIX. The mean incubator temperature was 25.0 ± 0.0°C. Water additions were made throughout the aging period in all four soil types to maintain 75% field capacity at 0.33 bar. Volumes of water added are presented in Table XX. Soil extracts of Day 0, 14 and 30 for all four soil types were analyzed by HPLC. Distribution of radiocarbon extracted from and remaining on soil for these samples is presented in Tables III - VI. Material balance for each of these extracted soil samples is presented in Tables VII - X. Quantitative degradation profiles in all four soil types are presented in Tables XXI - XXIV. High performance liquid radiochromatograms and peak integration summaries for soil extracts of the four aged soil types are presented in Figures 11 - 14.

Rate of Leachate Movement Through Soil Columns

The time required for 1,030 ml of water to pass through each of replicate sand, sandy loam (replicate A) and loam columns was less than one day. The sandy loam (replicate B) and silty clay replicate columns required two days. Bulk density, void volume, soil column section weights, volume of eluant required to leach one-half of the applied radiocarbon and distribution coefficients are presented in Table XI. The distribution coefficients of [^{14}C]propazine in each of the four soil types (mean of two replicates) were calculated as described in the Calculations section and are presented as follows:

Soil Type	K_d Value
Sand	4.46
Sandy Loam	42.44
Loam	3.57
Silty Clay	10.26

Distribution of Radiocarbon in Soil Columns After Leaching

Total radiocarbon was distributed with more remaining in the soil column and less in the leachate fractions. The percent of total radiocarbon remaining in the soil column (mean of replicates) ranged from 75.1% in loam to 92.7% in sandy loam. The percent of radiocarbon in the total leachate ranged from 1.7 to 19.0% (sandy loam and loam columns, respectively). The highest concentration of radiocarbon present in the soil column sections was in the 0-6 cm section for each soil type. Concentrations of radiocarbon in the 0-6 cm sections ranged from 84.5% of the applied radiocarbon in the sandy loam to 51.7% in loam. The highest percentage of radiocarbon in the leachates was in the second fraction for sand (9.1%), fourth fraction for sandy loam (1.1%), third fraction for loam (7.3%), and fourth fraction for silty clay (3.0%) soil columns. Concentrations of radiocarbon present in individual 6-cm sections and each leachate fraction are presented in Tables XIII, XIV, XV and XVI for sand, sandy loam, loam and silty clay columns, respectively.

Quantitative Characterization of Radiocarbon Present in Aged Soil Extracts

All Day 0, 14 and 30 aged samples for all soil types were extracted and the ACN:H_2O shake and reflux extracts subjected to HPLC analysis. A summary of extraction techniques used for each sample is presented in Table XXV. Extraction efficiencies and recovery of radiocarbon from the extraction procedure are presented for each aged soil extraction in Tables III - VI. For all aged soil samples, only the pooled ACN:H_2O shake and reflux extracts (Extract 1) contained sufficient radiocarbon for HPLC analysis. Quantitative degradation profiles for aged soil samples are presented in Tables XXI - XXIV for sand, sandy loam, loam and silty clay, respectively.

Major compounds present in Day 30 Extract 1 samples were propazine and propazine-2-hydroxy (up to 82.3 and 1.5% of the applied radiocarbon for all soil types, mean of replicates, respectively). Radiolabeled compounds that remained in aged Day 30 sand extracts were propazine and propazine-2-hydroxy (in Replicate A only) at 80.2 and

0.3% of the applied radiocarbon (mean of replicates), respectively. No unknown degradates >0.6% of applied radiocarbon (mean of replicates), were detected in the aged sand extracts. The only radiolabeled compound remaining in the aged Day 30 sandy loam and loam extracts was propazine at 82.3 and 77.3% of the applied radiocarbon (mean of replicates) in each soil type, respectively. Radiolabeled compounds that remained in aged Day 30 silty clay extracts were propazine and propazine-2-hydroxy at 75.3 and 1.5% of the applied radiocarbon (mean of replicates), respectively. No unknown degradates >0.6% of applied were detected in the aged silty clay extracts. Atrazine-desethyl, atrazine-desethyl-2-hydroxy and atrazine-desethyl-desisopropyl were not detected in any aged soil extracts. High performance liquid radiochromatograms of representative aged soil extracts are presented in Figures 11 - 14. High performance liquid radiochromatograms for all samples used in quantitative characterization are presented in Appendix 5.

Quantitative Characterization of Radiocarbon Present in Leachate Fractions

Leachate fractions that contained >5.0% (6.8 - 11.3%) of the applied radiocarbon were manipulated prior to being subjected to HPLC analysis. Radiocarbon recovery for these leachates upon centrifugation is presented in Appendix 3 (≥94.6% recovery). Representative leachates were manipulated prior to being subjected to TLC analysis for confirmation of propazine and degradation product identity. Radiocarbon recovery for these leachates upon partitioning and concentration is presented in Appendix 4 (≥98.8% recovery). Quantitative degradation profiles for leachate fractions of Sand, Replicates A and B, Second Fraction and Loam, Replicates A and B, Third and Fourth Fractions are presented in Table XXVI. The only radiolabeled compound in leachates was propazine at 6.8 - 11.3% of the applied radiocarbon in sand and loam leachates. Propazine-2-hydroxy, atrazine-desethyl, atrazine-desethyl-2-hydroxy and atrazine-desethyl-desisopropyl were not detected in any leachate fraction by HPLC. No unknown degradates were detected in any leachate fraction. Representative high performance liquid radiochromatograms and peak integration summaries of leachate fractions are presented in Figures 15 - 16. High performance liquid radiochromatograms for all samples used for quantitative characterization are presented in Appendix 6.

Quantitative Characterization of Radiocarbon Present in Soil Column Section Extracts

All 0-6 cm soil column sections for all soil types were extracted and subjected to HPLC analysis. A summary of the extraction techniques used for each sample is presented in Table XXV. Extraction efficiencies and recovery of radiocarbon from the extraction procedure are presented for each 0-6 cm column section in Table XVII. For every 0-6 cm column section, only the pooled ACN:H_2O shake and reflux extracts (Extract 1) contained sufficient radiocarbon for analysis. Quantitative degradation profiles for all 0-6 cm extracted soil sections are presented in Table XXVII for sand, sandy loam, loam and silty clay columns. The only known radiolabeled compound remaining in the 0-6 cm column section ACN:H_2O extracts was propazine at 63.2, 67.2, 37.4 and 56.7% of the applied radiocarbon (mean of replicates), respectively for sand, sandy loam, loam and silty clay soils. Propazine-2-hydroxy, atrazine-desethyl, atrazine-desethyl-2-hydroxy and atrazine-desethyl-desisopropyl were not detected in any 0-6 cm column section soil extracts. No unknown degradates were detected >2.0% of applied radiocarbon (mean of replicates) for any column section extract. High performance liquid radiochromatograms of representative soil column section extracts are presented in Figures 17 - 20. High performance liquid radiochromatograms for all samples used in quantitative characterization are presented in Appendix 7.

Confirmation of Degradate Identification

Identities of propazine and propazine-2-hydroxy in aged soil extracts were confirmed by two-dimensional TLC. Analysis of aged Day 30 ACN:H_2O shake and reflux soil extracts (Extract 1) from all four soil types indicated that the quantities of radiocarbon present as propazine and propazine-2-hydroxy were consistent by HPLC and TLC (see Table XXVIII). Slightly higher amounts of propazine and propazine-2-hydroxy were shown by HPLC versus TLC. Atrazine-desethyl, although not detected by HPLC analysis, was identified by TLC analysis. The thin-layer radiochromatograms of the ACN:H_2O aged soil extracts of Day 30, Replicate A, sand, sandy loam, loam and silty clay soils are presented in Figures 21 - 24. Integration summaries derived from LSC quantitation of scraped zones of these plates are presented in Tables XXIX - XXXII.

Two-dimensional TLC analyses were also performed on the Sand, Replicate B, Second Fraction and Loam, Replicate A, Fourth Fraction leachates. The concentration of propazine was consistent by HPLC and TLC analyses (see Table XXVIII). Propazine-2-hydroxy was not detected by HPLC or TLC. Atrazine-desethyl, although not detected by HPLC analysis, was identified by TLC analysis (1.2% of analyzed). Thin layer radiochromatograms of the two leachates are presented in Figures 25 and 26. Integration summaries derived from LSC quantitation of scraped zones of these plates are presented in Tables XXXIII - XXXIV.

Material Balance

Total radiocarbon recovery in leachate and soil for the entire study (mean ± standard error of replicate columns of all four soil types) was 94.3 ± 1.2%. Mean recoveries for replicate columns of each soil type were as follows:

Column Containing Soil Type	Percent Radiocarbon Recovery
Sand	97.5
Sandy Loam	94.4
Loam	94.0
Silty Clay	91.4
Mean ± Standard Error	94.3 ± 1.2

See Tables XIII - XVI for radiocarbon recovery of each individual column.

Storage Stability

Analyses were performed on samples up to 13 days after sample preparation for aged soil extracts, 22 days after sample preparation for the 0-6 cm column section extracts and within three months after leachates eluted from their respective columns. Since soil extracts were analyzed within 30 days and all showed ≥96.19% propazine (see Appendix 7); no other stability data is needed. Analysis of the Sand, Replicate B, Second Leachate Fraction and the Loam, Replicate A, Fourth Leachate Fraction (Figures 15 and 16) after three months of storage show 100.00% (% of analyzed) [^{14}C]propazine by HPLC. Confirmation analysis by TLC showed 97.1 and 98.4% (% of analyzed) as [^{14}C]propazine for these sand and loam leachates, respectively (Figures 25 and 26). Therefore, no degradation of [^{14}C]propazine resulted from sample storage.

CONCLUSIONS

An assessment of the potential mobility of [^{14}C]propazine in soil was determined by leaching (following aerobic aging for 30 days) in four different soil types ranging from sand to silty clay. [^{14}C]Propazine and/or its degradation products exhibited slight mobility in all cases with 1.7 to 19.0% of the applied radiocarbon passing through the columns in the leachate. Chromatographic analysis indicated that [^{14}C]propazine was present in aged soil extracts (up to 82.3% of the applied radiocarbon, mean of replicates), leachate fractions (up to 11.3% of the applied radiocarbon in the Sand, Replicate A, Second Fraction) and 0-6 cm column section soil extracts (up to 67.2% of the applied radiocarbon, mean of replicates). Propazine-2-hydroxy was only present in Day 30 aged sand and silty clay soil extracts, 0.3 (Replicate A only) and 1.5% (mean of replicates) of applied radiocarbon, respectively. Atrazine-desethyl, atrazine-desethyl-2-hydroxy and atrazine-desethyl-desisopropyl were not detected in any aged soil extract, leachate or 0-6 cm column section soil extract. No unknown degradates were present in any leachate or aged sandy loam or loam soil extracts. No unknown degradates were present >0.6 or >1.5% of the applied radiocarbon (mean of replicates) in any aged sand or silty clay soil extracts. Distribution coefficients (K_d) were calculated for each soil type, showing [^{14}C]propazine to have slight mobility in all four soil types tested.