DATA EVALUATION RECORD

STUDY 2

CHEM 128847 Difenoconazole §162-1
CAS No. 119446-68-3
FORMULATION–00–ACTIVE INGREDIENT

STUDY ID 42245131
Gonzalez-Valero, J. 1991. (Interim Report) Rate of degradation of ^{14}C-CGA-169374 in aerobic soil at various conditions. Laboratory Project IDs: 91GJ01 and 91GJ02. Unpublished study performed by CIBA-GEIGY Limited, Basel, SWITZERLAND; and submitted by CIBA-GEIGY Corp., Greensboro, NC.

DIRECT REVIEW TIME = 128 Hours

REVIEWED BY:	A. M. Glucksman, M.S.	Signature: Andrew M. Glucksman
TITLE:	Scientist	Date: 3/15/00
	B. S. Perkovich, M.E.M.	
	Scientist	
EDITED BY:	C. A. Sutton, Ph.D.	Signature: C.A. Sutton
TITLE:	Sr. Scientist/Asst. Project Manager	Date: 3/15/00
APPROVED BY:	P. H. Howard, Ph.D.	Signature: Philip H Howard
TITLE:	Project Manager	Date: 3/14/00
ORG:	Syracuse Research Corporation Arlington, VA 22202	
TEL:	703/413-9369	

APPROVED BY:	James A. Hetrick
TITLE:	Chemist
ORG:	ERB I/EFED/OPP
TEL:	703/305-5237

SIGNATURE:

CONCLUSIONS

Metabolism - Aerobic Soil

1. This study is scientifically valid and provides useful information on the aerobic soil metabolism of difenoconazole. However, in the high treatment rate study, the study was not conducted for a length of time sufficient to determine a valid half-life; the reported half-life was determined beyond the scope of the observed data. Additionally, that study was conducted at an exaggerated rate (8 times the maximum recommended application) which cannot be used for kinetics studies. In the low treatment rate study, material balances were initially outside the acceptable range of 90-110%, and decreased with time.

2. This study does not meet Subdivision N Guidelines for the fulfillment of EPA data requirements on aerobic soil metabolism for the following reasons:

   (i) the study was terminated before the pattern of decline of the test substance was established (high treatment rate);

   (ii) the soil moisture content was not adjusted to 75% of 0.33 bar (high and low treatment rates);

   (iii) the incubation temperature was not held constant at ± 1 °C (high and low treatment rates); and

   (iv) material balances were outside the reasonable range of 90-110% (low treatment rate).

3. In the high treatment rate study, radiolabeled [^{14}C]difenoconazole (both labels), at a nominal application rate of 1.0 ppm, degraded with a registrant-calculated half-life (reported as a DT_{50}) of 305 days (r^2 not reported) in silt loam soil adjusted to 60% of 0.33 bar moisture content and incubated in darkness at 20 ± 2 °C for up to 120-122 days. However, the half-life is of questionable validity since it was determined beyond the scope of the observed data; the parent compound was present at 68.7-71.9% (0.69-0.72 ppm) of the applied radioactivity at 120-122 days posttreatment. All data, designated as percentages of the applied radioactivity, represent percentages of the nominal application. Reported residue concentration data (in ppm) were reviewer-calculated based on the nominal application rates and the percentages of the applied radioactivity. In the chlorophenyl ring label study, the parent compound was initially 95.3% (0.95 ppm) of the applied radioactivity, decreased to 81.1-82.1% (0.81-0.82 ppm) by 30-60 days posttreatment, and was 71.9% (0.72 ppm) at 120 days. Degradates were not detected. Nonextractable [^{14}C]residues were 10.5-14.3% of the applied radioactivity at 60-120 days posttreatment. Evolved $^{14}CO_2$ was initially (day 30) 1.6% of the applied radioactivity and was 5.0% at 120 days posttreatment. In the triazole ring label study, the parent compound

was initially 93.7% (0.94 ppm) of the applied radioactivity, was 82.0-88.5% (0.82-0.89 ppm) at 19-60 days posttreatment, and was 68.7% (0.67 ppm) at 122 days. Degradates were not detected. Nonextractable [^{14}C]residues were 9.3-13.3% of the applied radioactivity at 32-91 days posttreatment and were a maximum of 19.8% at 122 days. Evolved $^{14}CO_2$ accounted for ≤0.2% of the applied radioactivity throughout the incubation period.

In the low treatment rate study, uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole, at a nominal application rate of 0.1 ppm, degraded with a registrant-calculated half-life (reported as a DT_{50}) of 79 days (r^2 not reported) in silt loam soil adjusted to 60% of 0.33 bar moisture content and incubated in darkness at 20 °C for up to 120-122 days. The parent compound was initially 90.1% (0.090 ppm) of the applied radioactivity, decreased to 51.8% (0.052 ppm) by 60 days and 40.0% (0.040 ppm) by 90 days, and was 33.8% (0.034 ppm) at 120 days posttreatment. Degradates were not detected. Nonextractable [^{14}C]residues were initially (time 0) 2.4% of the applied radioactivity, increased to 17.4% by 30 days posttreatment, and were a maximum of 38.6% at 120 days. Evolved $^{14}CO_2$ was initially (day 30) detected at 3.1% of the applied radioactivity, increased to 10.8% by 90 days posttreatment, and was 15.3% at 120 days.

The degradation of uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole, at a nominal application rate of 1.0 ppm, was also studied under the conditions 20 °C and 30% of moisture content at 0.33 bar and at 10 °C and 60% of 0.33 bar. The degradation of triazole ring-labeled [3,5-^{14}C]difenoconazole, at a nominal application rate of 1.0 ppm, was also studied under the conditions 30 °C and 60% of 0.33 bar. It was observed in the additional studies that, generally, degradation of the parent increased with increased temperature and decreased with lower soil moisture content.

METHODOLOGY

Samples (900 g) of sieved (2 mm) silt loam soil (collected from Les Barges/VS, Switzerland; 26.9% sand, 59.7% silt, 13.4% clay, pH 7.2, 1.95% organic carbon, CEC 13.7 mmol/Z/100 g; Table 1, p. 25; see Comment #8) were adjusted to 60% of the moisture content at 0.33 bar (pp. 14, 18). Soil samples were treated with uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole {CGA-169374; 1-(2-[4-chlorophenoxy)-2-chlorophenyl-(4-methyl-1,3-dioxalan-2-yl)-methyl])-1H-1,2,4-triazole; radiochemical purity 99.6%, specific activity 1.14 Mbq/mg} OR triazole ring-labeled [3,5-^{14}C]difenoconazole (radiochemical purity 97.6%, specific activity 1.04 Mbq/mg; pp. 12, 13, 21), dissolved in acetone, at a nominal application rate of 1.0 mg/kg (p. 16); additional samples were treated with uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole at a nominal application rate of 0.1 mg/kg. The treated soil samples were mixed, and subsamples (75 g) were transferred to Erlenmeyer flasks and incubated in darkness at 20 ± 2 °C for up to 120 days (chlorophenyl label study) OR 122 days

(triazole label study). The soil moisture levels were monitored weekly during the first month of incubation and biweekly for the remainder of the study; water was added as necessary (p. 15). Humidified air was pumped through the flasks in series and into two CO_2 traps (2 *N* NaOH; Figure 1, p. 26). For the chlorophenyl label study, additional samples were prepared by the same method, but were incubated at 20 °C and 30% of 0.33 bar and at 10 °C and 60% of 0.33 bar (p. 16). For the triazole label study, additional samples were prepared by the same method, but were incubated at 30 °C and 60% of 0.33 bar. Samples were removed for analysis at 0, 30, 60, 90, and 120 days posttreatment (chlorophenyl label; see Comment #9) OR 0, 19, 32, 60, 82, 91, and 122 days posttreatment (triazole label). Volatile trap solutions were replaced weekly during the first month of the incubation and at two-week intervals for the remainder of the incubation period (p. 17).

At each sampling interval, soil samples were extracted three times by agitating with acetone followed by a single extraction with acetone:water (80:20, v:v; p. 17). The soil samples were further extracted by Soxhlet with acetone. An aliquot of the combined extracts (except Soxhlet) was concentrated by rotary evaporation; the concentrated extract was partitioned three times with dichloromethane. The organic phase was dried by filtration through sodium sulphate. The water and organic phases were analyzed for total radioactivity by LSC (p. 18).

To identify the parent compound and potential degradates, the organic phase from samples treated at the 0.1 ppm application rate (chlorophenyl label study only) was evaporated to dryness, redissolved in acetonitrile, and analyzed by HPLC (Nucleosil C18 column) using a mobile phase gradient of acetonitrile:phosphoric acid (25:75 to 95:5, v:v) with UV (236 nm) and radioactive flow detection (p. 19). Samples were co-chromatographed with a nonradiolabeled reference standard of the parent (p. 12). The organic phase from samples treated at the 1.0 ppm application rate (both label studies) was concentrated; an aliquot of the concentrated extract was evaporated to dryness, redissolved in acetonitrile:water (75:25, v:v), and analyzed by HPLC as described previously (p. 17). Selected sample extracts (those containing >3% of the applied radioactivity following the Soxhlet extraction) were concentrated and centrifuged, and aliquots of the supernatant were evaporated to dryness, redissolved in acetonitrile:water (75:25, v:v), and analyzed by HPLC as described previously. The water phase of selected sample extracts (those containing >1% of the applied radioactivity) were extracted (method not specified), mixed with acetonitrile:water (75:25, v:v), and analyzed by HPLC as described previously. Post-extracted soil samples were air dried and analyzed by LSC following combustion (p. 18); combustion efficiency was not reported. It was not reported whether data were corrected for combustion efficiency.

To determine the soil viability, untreated soil samples were prepared for analysis of microbial biomass (p. 15); data indicated that 80.5 mg microbial carbon/100 g dry soil

was present at the initiation of the study (p. 21). Data demonstrating the viability of the soil throughout the incubation period were not provided.

DATA SUMMARY

In the high treatment rate study, radiolabeled [^{14}C]difenoconazole (radiochemical purity 99.6% and 97.6% for the chlorophenyl and triazole labels, respectively), at a nominal application rate of 1.0 ppm, degraded with a registrant-calculated half-life (reported as a DT_{50}) of 305 days (r^2 not reported) in silt loam soil adjusted to 60% of 0.33 bar moisture content and incubated in darkness at 20 ± 2 °C for up to 120-122 days (p. 23; Figure 12, p. 37; see Comment #3). However, the half-life is of questionable validity since it was determined beyond the scope of the observed data; the parent compound was present at 68.7-71.9% (0.69-0.72 ppm) of the applied radioactivity at 120-122 days posttreatment (Figures 6, 10, pp. 31, 35). All data, designated as percentages of the applied radioactivity, represent percentages of the nominal application. Reported residue concentration data (in ppm) were reviewer-calculated based on the nominal application rates and the percentages of the applied radioactivity.

In the low treatment rate study, uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole, at a nominal application rate of 0.1 ppm, degraded with a registrant-calculated half-life (reported as a DT_{50}) of 79 days (r^2 not reported) in silt loam soil adjusted to 60% of 0.33 bar moisture content and incubated in darkness at 20 °C for up to 120-122 days (r^2 not reported; Figure 12, p. 37).

The degradation of uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole, at a nominal application rate of 1.0 ppm, was also studied under the conditions 20 °C and 30% of moisture content at 0.33 bar, and at 10 °C and 60% of 0.33 bar. The degradation of the triazole ring-labeled [3,5-^{14}C]difenoconazole, at a nominal application rate of 1.0 ppm, was also studied under the conditions 30 °C and 60% of 0.33 bar. It was observed in the additional studies that, generally, degradation of the parent increased with increased temperature and decreased with lower soil moisture content.

Uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole

In the study conducted at 20 °C and 60% of the moisture content at 0.33 bar in which samples were treated at the 1.0 ppm nominal application rate, the parent compound was initially present at 95.3% (0.95 ppm) of the applied radioactivity, decreased to 81.1-82.1% (0.81-0.82 ppm) of the applied by 30-60 days posttreatment, and was 71.9% (0.72 ppm) of the applied at 120 days posttreatment (Figure 10, p. 35). Degradates were not detected. Nonextractable [^{14}C]residues initially (time 0) accounted for 0.4% of the applied radioactivity and were 10.5-14.3% of the applied at 60-120 days posttreatment.

Evolved $^{14}CO_2$ initially (day 30) accounted for 1.6% of the applied radioactivity and was 5.0% of the applied at 120 days posttreatment.

Material balances (based on LSC analysis) were 96.9-104.1% of the applied radioactivity throughout the incubation period (Figure 10, p. 35).

In the study conducted at 20 °C and 60% of 0.33 bar moisture content in which samples were treated at the 0.1 ppm application rate, the parent compound was initially present at 90.1% (0.090 ppm) of the applied radioactivity, decreased to 51.8% (0.052 ppm) by 60 days and 40.0% (0.040 ppm) of the applied by 90 days posttreatment, and was 33.8% (0.034 ppm) of the applied at 120 days posttreatment (Figure 11, p. 36). Degradates were not detected. Nonextractable [^{14}C]residues were initially (time 0) 2.4% of the applied radioactivity, increased to 17.4% of the applied by 30 days posttreatment, and were a maximum of 38.6% of the applied at 120 days posttreatment. Evolved $^{14}CO_2$ was initially (day 30) detected at 3.1% of the applied radioactivity, increased to 10.8% of the applied by 90 days posttreatment, and was 15.3% of the applied at 120 days posttreatment.

Material balances (based on LSC analysis) decreased over time and were 120.5-123.2% of the applied radioactivity at 0-30 days posttreatment and were 95.9-102.7% of the applied at 60-120 days posttreatment (Figure 11, p. 36).

In the study conducted at 10 °C and 60% of moisture content at 0.33 bar in which samples were treated at the 1.0 ppm nominal application rate, the parent compound was stable (registrant-calculated half-life of 665 days, r^2 not reported). The parent compound was initially 92.6% (0.93 ppm) and generally decreased to 82.9% (0.83 ppm) of the applied radioactivity by 120 days posttreatment (Figure 9, p. 34). Degradates were not detected. Nonextractable [^{14}C]residues were a maximum of 8.6% of the applied radioactivity at 120 days posttreatment. Evolved $^{14}CO_2$ was negligible.

Material balances (based on LSC analysis) were 99.4-104.1% of the applied radioactivity throughout the incubation period (Figure 9, p. 34).

In the study conducted at 20 °C and 30% of moisture content at 0.33 bar in which samples were treated at the 1.0 ppm nominal application rate, the parent compound was stable (registrant-calculated half-life of 794 days, r^2 not reported). The parent compound was initially 92.6% (0.93 ppm) and generally decreased to 84.6% (0.85 ppm) of the applied radioactivity by 120 days posttreatment (Figure 8, p. 33). Degradates were not detected. Nonextractable [^{14}C]residues were a maximum of 8.0% of the applied radioactivity at 120 days posttreatment. Evolved $^{14}CO_2$ was negligible.

Material balances (based on LSC analysis) were 96.8-104.8% of the applied radioactivity throughout the incubation period (Figure 8, p. 33).

Triazole ring-labeled [3,5-^{14}C]difenoconazole

In the study conducted at 20 °C and 60% of moisture content at 0.33 bar in which samples were treated at the 1.0 ppm nominal application rate, the parent compound was initially present at 93.7% (0.94 ppm) of the applied radioactivity, was 82.0-88.5% (0.82-0.89 ppm) of the applied at 19-60 days posttreatment, and was 68.7% (0.69 ppm) of the applied at 122 days posttreatment (Figure 6, p. 31). Degradates were not detected. Nonextractable [^{14}C]residues initially (time 0) accounted for 0.2% of the applied radioactivity, increased to 5.7% of the applied by 19 days posttreatment, were 9.3-13.3% of the applied at 32-91 days posttreatment, and were a maximum of 19.8% of the applied at 122 days posttreatment. Evolved $^{14}CO_2$ accounted for ≤0.2% of the applied radioactivity throughout the incubation period.

Material balances (based on LSC analysis) were 96.4-100.4% of the applied radioactivity throughout the incubation period (Figure 6, p. 31).

In the study conducted at 30 °C and 60% of moisture content at 0.33 bar in which samples were treated at the 1.0 ppm nominal application rate, the parent compound degraded with a registrant-calculated half-life of 175 days (r^2 not reported; Figure 12, p. 37). The reported half-life was beyond the scope of the data. The parent compound was initially present at 90.2% (0.90 ppm) of the applied radioactivity, decreased to 78.9% (0.79 ppm) of the applied by 19 days posttreatment, and decreased from 73.5% (0.74 ppm) to 55.8% (0.56 ppm) of the applied at 32-120 days posttreatment (Figure 7, p. 32). Degradates were not detected. Nonextractable [^{14}C]residues were a maximum of 23.6% of the applied radioactivity at 122 days posttreatment. Evolved $^{14}CO_2$ was negligible.

Material balances (based on LSC analysis) were 88.0-103.6% of the applied radioactivity throughout the incubation period (Figure 7, p. 32).

COMMENTS

1. The study included the incubation and analysis of samples prepared at various soil moisture levels and incubated at various temperatures. The reviewer notes that the validity statement and descriptions of regulatory compliance (guideline) deficiencies in items #1 and #2 of the "Conclusions" section of this DER refer only to the three studies (both labels at 1 ppm; one label only at 0.1 ppm) conducted at 20 °C and 60% of 0.33 bar moisture content, as these conditions were the closest to those required by Subdivision N Guidelines.

2. The maximum label rate for difenoconazole was reported as 0.125 kg a.i./ha (p. 13). The studies conducted at the high treatment rate of 1 ppm (or 1.0 kg a.i./ha) are considered exaggerated rate studies (8X the maximum label rate). Exaggerated rate studies may be

used to identify degradates, but the EPA requires that kinetic studies be performed at the maximum label rate (*1993 Rejection Rate Analysis*). The reviewer notes that data were submitted for a study conducted at 0.1 kg a.i./ha (0.1 ppm); however, data were submitted only for the chlorophenyl-labeled parent compound. A second study utilizing triazole-labeled parent compound is necessary.

3. In the high treatment rate study, the half-life of the parent calculated by the registrant (both labels; 1.0 ppm treatment rate; incubated at 20 °C and 60% of 0.33 bar) is of questionable validity since it was determined beyond the scope of the observed data; the parent compound was present at 68.7-71.1% of the applied radioactivity at 120-122 days posttreatment (Figures 6, 10, pp. 31, 35). Data which appear linear may become curvilinear over time and a half-life estimated using such data may be inaccurate. The study was not conducted until the pattern of decline of the test substance and patterns of formation and decline of degradates were established, or for one year, as required by Subdivision N Guidelines. Also, the reviewer is unclear as to whether the registrant used combined data (from both label studies) to calculate the half-life (305 days; r^2 not reported) of the parent at the 1.0 ppm application rate (p. 23; Figure 12, p. 37). The study author did not report which data were utilized in the calculation; however, only one half-life was reported for the high treatment rate samples incubated at 20 °C and 60% of 0.33 bar, while both labels were studied under these conditions. The reviewer-calculated half-life of the parent using combined data was 315 days ($r^2 = 0.88$). The reviewer-calculated half-lives of the parent were 315 days ($r^2 = 0.92$) and 301 days ($r^2 = 0.90$) for the chlorophenyl label and triazole label studies, respectively, at the 1.0 ppm application rate. The registrant-calculated half-lives were reported as DT_{50}s (Figure 12, p. 37). However, the study author stated that linear regression analysis was used to determine the decline of the parent (p. 20).

4. The soil moisture content was maintained at 60% of 0.33 bar for soils incubated at 20 ± 1 °C (both labels; p. 15). Subdivision N Guidelines require that soil samples be adjusted to 75% of 0.33 bar soil moisture content. The reviewer notes that the soil moisture content (60% of 0.33 bar) was likely to provide moisture conditions conducive for microbial activity.

5. Samples were incubated at 20 ± 2 °C and 60% of 0.33 bar (p. 15). Subdivision N Guidelines require that the experimental temperature be held constant at ± 1 °C.

6. Nonextractable [^{14}C]residues were high in both label studies treated at 1.0 ppm and incubated at 20 °C and 60% of 0.33 bar and in the study conducted at 0.1 ppm under similar conditions. In the chlorophenyl label study conducted at 1 ppm, nonextractable [^{14}C]residues were 10.5% (60 days posttreatment) of the applied radioactivity and were a maximum of 14.3% at 120 days (Figure 10, p. 35). In the triazole label study (1 ppm) nonextractable [^{14}C]residues were 9.3-9.9% (32-60 days posttreatment) of the applied radioactivity and were a maximum of 19.8% at 122 days (Figure 6, p. 31). In the

chlorophenyl label study conducted at 0.1 ppm, nonextractables were 17.4% of the applied at 30 days and were a maximum of 38.6% of the applied at 120 days posttreatment. Subdivision N Guidelines require that a reasonable attempt be made to extract and identify all radioactivity present at ≥10% of the applied radioactivity. However, a reasonable attempt was made to extract [^{14}C]residues; a harsh Soxhlet extraction was performed following extraction with acetone and acetone:water (80:20, v:v; p. 17). Organic matter fractionation was not performed to determine the radioactivity associated with the humic acid, fulvic acid, and humin fractions; generally, such data are reported for aerobic soil metabolism studies.

7. In the chlorophenyl label study conducted at 0.1 ppm, material balances were >110% of the applied radioactivity at two sampling intervals (123.2% at time 0 and 120.5% at day 30; Figure 11, p. 36). The reviewer noted that the material balance decreased from 123.2% to 95.9% of the applied radioactivity at 0 to 120 days posttreatment; data were corrected for recoveries (Figure 11, p. 36). Subdivision N Guidelines require that material balances be within the acceptable range of 90-110% of the applied.

8. It was unclear whether the silt loam soil was representative of the intended use area of difenoconazole. Additionally, the reviewer noted a discrepancy with regard to the identification of the soil textural class. In the "summary" the study author stated that a loamy sand soil was used (p. 11), in "introduction" it was stated that a sand soil was used (p. 12), and in the "test system" section it was stated that a loam soil was used (p. 14). The reviewer identified the soil as a silt loam according to the USDA textural triangle (based on data reported in Table 1, p. 25). Clarification by the registrant may be necessary.

9. The reviewer could not confirm that replicate samples were utilized in the study (both labels). Twelve samples were prepared for each treatment rate combination, and there were seven and five sampling intervals for the chlorophenyl label and triazole label studies, respectively (pp. 16, 17). It is unclear to the reviewer whether a sufficient number of samples were prepared for removal of duplicate samples at each sampling interval. Additionally, replicate results data were not reported. Clarification by the registrant is necessary.

10. Residue data were reported only as percentages of the applied radioactivity; concentration data were not reported. All concentration data (in ppm) were reviewer-calculated from the nominal application rates and the reported percentages of the applied radioactivity. In future studies submitted to the EPA, it is necessary that data be reported as both percentages of the applied radioactivity and in units of concentration, such as ppm.

11. The limits of quantitation and detection were not reported for HPLC or LSC analyses. It is necessary that both limits of detection and quantitation be reported to allow the reviewer to evaluate the adequacy of the method for the determination of the test

compound and its degradates. The study author stated that LSC data were corrected for background and counting efficiency (p. 18).

12. The reviewer notes that, in the chlorophenyl label study, the calculated half-life was affected by the application rate (1.0 ppm *vs.* 0.1 ppm) when moisture content and incubation temperature were held constant (figure 12, p. 37). The registrant-calculated half-lives were 305 days (1.0 ppm application rate) and 79 days (0.1 ppm application rate).

13. Soil viability was only confirmed at the initiation of the study. Generally, metabolism studies include data demonstrating the viability of the soil microbial population at the initiation and termination of the study.

14. The study author stated that the soil was stored "biologically active in a greenhouse" prior to use (p. 14); the length of storage was not reported.

15. The study was conducted at 1 ppm using triazole ring-labeled [3,5-^{14}C]difenoconazole and uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole; at 0.1 ppm, only uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole was utilized. The compound contains additional ring structures (chlorophenyl and dioxalan) that were not radiolabeled.

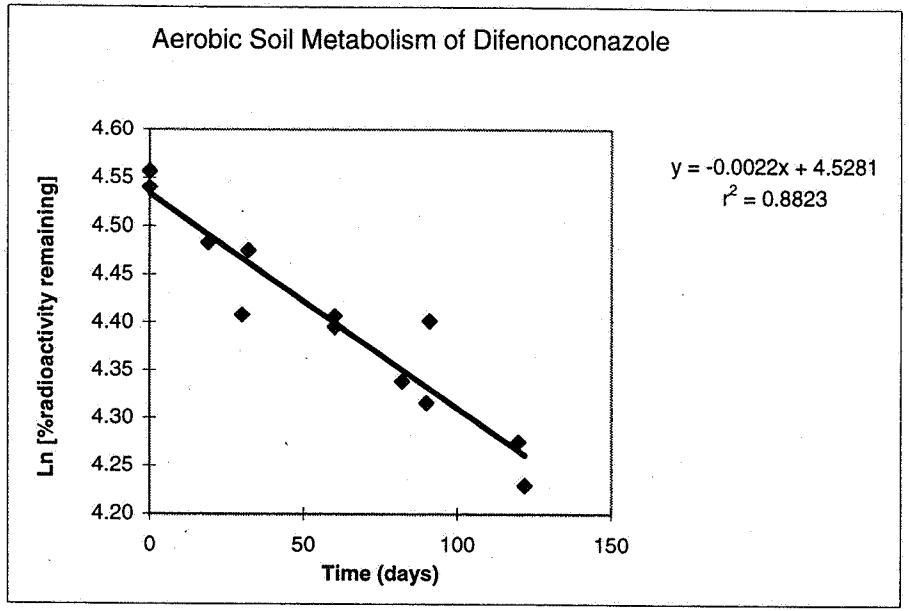
Produced by Syracuse Research Corporation

Reviewer-calculated half-life
Combined data for chlorophenyl and triazole label studies

MRID 42245131

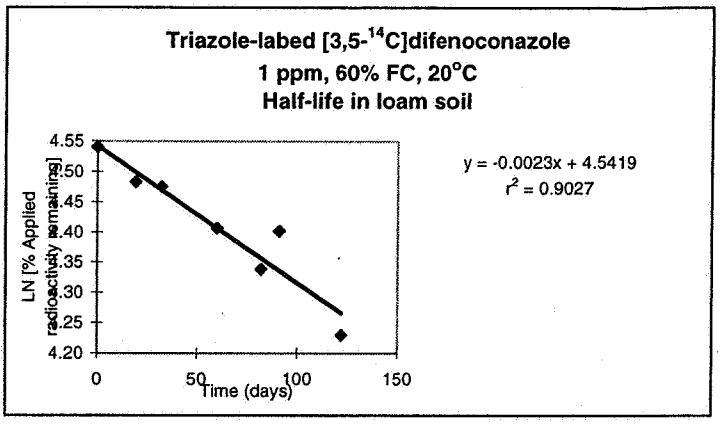
Time (days)	Parent (% remaining)	Ln [%remaining]
0	93.7	4.540
0	95.3	4.557
19	88.5	4.483
30	82.1	4.408
32	87.8	4.475
60	81.1	4.396
60	82.0	4.407
82	76.6	4.339
90	74.9	4.316
91	81.6	4.402
120	71.9	4.275
122	68.7	4.230

Half-Life (days):	315.1



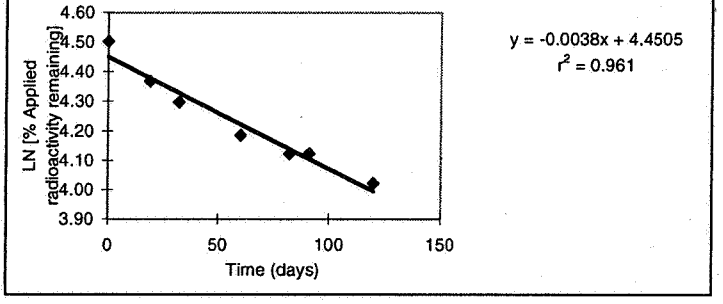
Compound:	Triazole ring-labeled [3,5-^{14}C]difenoconazole	
Conditions:	1.0 ppm, 60% FC, 20°C	
Time (days)	% Remaining	Log of % Remaining
0	93.7	4.540
19	88.5	4.483
32	87.8	4.475
60	82	4.407
82	76.6	4.339
91	81.6	4.402
122	68.7	4.230

Half-Life (days):	301.37



Compound:	Triazole ring-labeled [3,5-^{14}C]difenoconazole	
Conditions:	1.0 ppm, 60% FC, 30°C	
Time (days)	% Remaining	Log of % Remaining
0	90.2	4.502
19	78.9	4.368
32	73.5	4.297
60	65.7	4.185
82	61.7	4.122
91	61.7	4.122
120	55.8	4.022

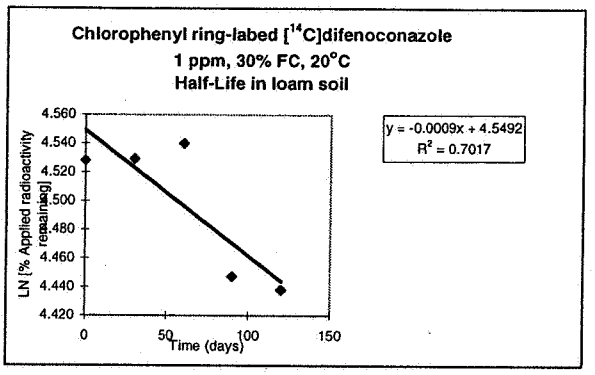
Half-Life (days):	182.41



Compound:	Uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole
Conditions:	1.0 ppm, 30% FC, 20°C

Time (days)	% Remaining	Log of % Remaining
0	92.6	4.528
30	92.7	4.529
60	93.7	4.540
90	85.4	4.447
120	84.6	4.438

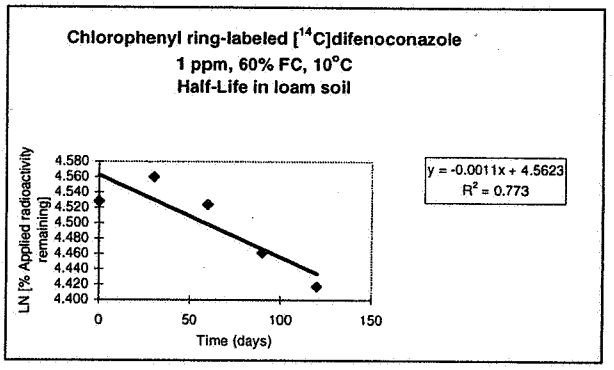
Half-Life (days):	770.16



Compound:	Uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole
Conditions:	1.0 ppm, 60% FC, 10°C

Time (days)	% Remaining	Log of % Remaining
0	92.6	4.528
30	95.6	4.560
60	92.2	4.524
90	86.6	4.461
120	82.9	4.418

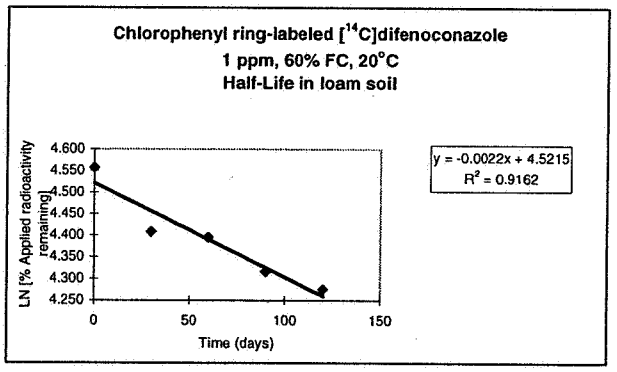
Half-Life (days):	630.13



Compound:	Uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole
Conditions:	1.0 ppm, 60% FC, 20°C

Time (days)	% Remaining	Log of % Remaining
0	95.3	4.557
30	82.1	4.408
60	81.1	4.396
90	74.9	4.316
120	71.9	4.275

Half-Life (days):	315.07



Compound:	Uniformly chlorophenyl ring-labeled [^{14}C]difenoconazole
Experiment:	0.1 ppm, 60% FC, 20°C

Time (days)	% Remaining	Log of % Remaining
0	90.1	4.501
30	66.4	4.196
60	51.8	3.947
90	40	3.689
120	33.8	3.520

Half-Life (days):	84.53