DP Barcode : D158135, D158144
PC Code No. : 080807
EFGWB Out : APR 13 1993

TO: Kathleen Pearce
Product Manager #62
Reregistration Division (H7508W)

FROM: Elizabeth Behl, Head
Ground Water Technology Section
Environmental Fate & Ground Water Branch/EFED (H7507C)

THRU: Henry Jacoby, Chief
Environmental Fate & Ground Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of...

Reg./File # :

Common Name : Simazine

Product Name : Aquazine, Princep, Caliber 90

Company Name : Ciba

Purpose : Review documents on simazine use in U.S., simazine occurrence in ground water, retrospective monitoring, and response to Agency letter.

Type Product : Herbicide

Action Code : 800 EFGWB #(s): 91-0142, 91-0143 Total Review Time = 2 days

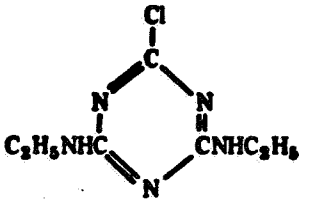
EFGWB Guideline/MRID/Status Summary Table: The review in this package contains...

161-1	162-4	164-4	166-1
161-2	163-1	164-5	166-2
161-3	163-2	165-1	166-3
161-4	163-3	165-2	167-1
162-1	164-1	165-3	167-2
162-2	164-2	165-4	201-1
162-3	164-3	165-5	202-1

Y = Acceptable (Study satisfied the Guideline)/Concur P = Partial (Study partially satisfied the Guideline, but additional information is still needed)
S = Supplemental (Study provided useful information, but Guideline was not satisfied) N = Unacceptable (Study was rejected)/Non-Concur

1. CHEMICAL:

Chemical name: 2-chloro-4,6-bis(ethylamino)-1,3,5-triazine
Common name: Simazine
Trade name(s): Aquazine, Princep, Caliber 90
Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Review summary reports for ground-water monitoring for simazine, the final report for a simazine large-scale retrospective monitoring study, and simazine use data.

4. STUDY IDENTIFICATION:

Title(s): 1) A Summary of Simazine Data in Ground and Surface Water (MRID #'s 414180-00, 414180-01; 416496-00, 416496-01, 417946-02)
2) Response to Agency Letter Received December 28, 1990; Special Simazine Data Call-In (MRID's #417946-00, 417946-01)
3) Summary of Simazine Groundwater Monitoirng Program (MRID #406144-26)
4) Simazine Use Data (MRID #416496-02)

DP Barcode(s): D158135, D158144
Date Sent to EFED: 11/16/90

Submitted for: Ciba Corporation
410 Swing Road
Greensboro, NC 27419

5. REVIEWED BY:

Estella Waldman Signature: Estella Waldman
Hydrologist
OPP/EFED/EFGWB/Ground Water Section Date: 4/6/93

6. APPROVED BY:

Elizabeth Behl Signature: Daniel A Wolf for EB
Section Head
OPP/EFED/EFGWB/Ground Water Section Date: 4/7/93

DP BARCODE: D158135

CASE: 838839 DATA PACKAGE RECORD DATE: 04/12/93
SUBMISSION: S385710 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: SPECIAL REVIEW ACTION: 800 DATA VALIDATION
CHEMICALS: 080807 Simazine (ANSI) , 100.00 %

ID#: 080807
COMPANY:
PRODUCT MANAGER: 62 ROOM:
PM TEAM REVIEWER: KATHLEEN PEARCE 703-308-8016 ROOM: CS1 1N5
RECEIVED DATE: 10/04/90 DUE OUT DATE: / /

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 158135 EXPEDITE: N DATE SENT: 11/14/90 DATE RET.: / /
CHEMICAL: 080807 Simazine (ANSI)
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 11/14/90 CSF: N LABEL: N

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	11/16/90	/ /
BRAN: EFGB	11/17/90	04/13/93
SECT: GTS	11/18/90	04/07/93
REVR : EWALDMAN	04/02/93	04/06/93
CONTR:	/ /	/ /

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL

DP BARCODE: D158144

CASE: 838839 DATA PACKAGE RECORD DATE: 04/12/93
SUBMISSION: S385726 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: SPECIAL REVIEW ACTION: 800 DATA VALIDATION
CHEMICALS: 080807 Simazine (ANSI) , 100.00 %

ID#: 080807
COMPANY:
PRODUCT MANAGER: 62 ROOM:
PM TEAM REVIEWER: KATHLEEN PEARCE 703-308-8016 ROOM: CS1 1N5
RECEIVED DATE: 03/15/90 DUE OUT DATE: / /

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 158144 EXPEDITE: N DATE SENT: 11/14/90 DATE RET.: / /
CHEMICAL: 080807 Simazine (ANSI)
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 11/14/90 CSF: N LABEL: N

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	11/16/90	/ /
BRAN: EFGB	11/17/90	04/13/93
SECT: GTS	11/18/90	04/07/93
REVR : EWALDMAN	04/02/93	04/06/93
CONTR:	/ /	/ /

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL

7. CONCLUSIONS:

Several documents were submitted by Ciba on simazine use and occurrence in ground water in the United States. These documents are:

1) Monitoring data on the occurrence of simazine in ground and surface water was provided by Ciba in "A Summary of Simazine Data in Ground and Surface Water". This review concerns the ground water portion of the submitted document; a review of the surface water information was submitted on October 7, 1992 (EFGWB #92-0646). The submitted document contains summary data for 30 monitoring studies requested by the August 1989 Data Call-In; no conclusions were drawn by the registrant about any of the information that was presented. No data were presented about simazine degradates in ground water.

2) The registrant provided an explanation of the inconsistencies noted in the 1989 version of "A Summary of Simazine Data in Ground and Surface Water" (MRID #414180-01) in a "Response to Agency Letter Received December 28, 1990; Special Simazine Data Call-In". The clarification of the questions posed by the Agency is acceptable.

3) A retrospective ground-water monitoring study was conducted by Ciba in 1986 - 1987 to determine whether simazine would leach to ground water in vulnerable areas under normal field use ("Summary of Simazine Groundwater Monitoring Program"). The Agency does not agree with the conclusions drawn by the Registrant; i.e, that almost all of the simazine detections in ground water can be attributed to point sources. In addition, a serious omission concerns the fact that no monitoring was conducted for simazine degradates in ground water.

4) Simazine use data for the United States were submitted on diskettes and in hardcopy (MRID #416496-02). This information has been incorporated into the EPA document entitled "Water Resources Impact Analysis for the Triazine Herbicides" (presently in house).

8. RECOMMENDATIONS:

1) "A Summary of Simazine Data in Ground and Surface Water"

A) It was noted that for several of the references described in the summary (see Discussion), the number of wells tested and/or the number of positive wells, were different in the 1990 and the 1991 summaries. The registrant should provide an explanation for the difference in the well counts.

B) The registrant should explain the inconsistency between the numbers reported for the Monsanto (NAWWS) study in the text and on the summary sheet. Also in need of explanation is the discrepancy between the number of simazine detections reported by Ciba (0.9%) and those reported by Monsanto (1.6%).

C) The 1990 and 1991 reports that were submitted are basically duplicates of each other. If similar data are submitted in the future, the Agency would appreciate the receipt of only new information. Any monitoring information on simazine degradates should also be submitted.

2) A "Response to Agency Letter Received December 28, 1990; Special Simazine Data Call-In". This submission is adequate and no further information is necessary.

3) "Summary of Simazine Groundwater Monitoring Program". The issue of whether or not simazine leaches to ground water cannot be resolved by this study. The conclusions presented by the registrant are inadequate for the reasons stated in the Discussion portion of this review. Without additional field work on these sites, no convincing conclusions can be drawn.

4) Simazine use data for the United States were submitted. These data have been incorporated an EPA document which is presently in house.

9. BACKGROUND:

The submitted information consists of several studies related to simazine occurrences in ground and surface water. These include:

- a literature summary of simazine concentrations in ground and surface water submitted by Ciba in response to the August 8, 1989 Data Call-In. This review concerns the ground water portion of the submitted document; a review of the surface water information was submitted on October 7, 1992 (EFGWB #92-0646).

- a response from Ciba to a letter written by the Agency concerning a submission of ground-water monitoring data.

- the final report on a retrospective ground-water monitoring study conducted for Ciba by Roux Associates.

- use data for simazine in the United States.

10. DISCUSSION:

Several documents submitted by the registrant were evaluated in this review. These include:

1) "A Summary of Simazine Data in Ground and Surface Water", August 31, 1990 (MRID #416496-00; MRID #416496-01) and February 4, 1991 (MRID #417946-02). These documents replaced MRID's #414180-00 and #414180-01.

This information was provided by the registrant in response to the Special Data Call-In (DCI) issued by the EPA on August 8, 1989. The DCI requested that a summary of all available ground and surface water monitoring information be submitted to the Agency. Also submitted when

available were: proximity of wells to application areas, locations of mixing/loading sites, sampling methods, and well characteristics. A complete list of references for the information submitted by the registrant was also incorporated in the report (and included in this review). These references a review of all monitoring data from 1975 to 1990 from both Ciba studies and literature publications.

The data provided by the registrant has been summarized in table format for this review. It was noted that for several of the references, the number of wells tested and/or the number of positive wells, were different in the 1990 and the 1991 summaries. The summaries with discrepancies include: USGS (1989), Klaseus et al. (1988), Brown et al. (1986), and Monsanto (1989).

Another problem is the inconsistency between the text on page 23 which discusses the Monsanto study (Discussion, subsection 4.1) and the summary provided on page 107. According to the text, the total number of wells in the Monsanto study is 1200, while in the summary document the total is 1430. Another problem concerns the number of wells with detections which Ciba reports as 15 (1%) in 1990 and 13 (0.9%) in 1991. EPA information (Monsanto, 1990, NAWWS Project Summary Document) indicates that 1430 total wells were indeed sampled for the study, but that 1.6% of these wells contained simazine residues.

2) A "Response to Agency Letter Received December 28, 1990; Special Simazine Data Call-In" (MRID's #417946-00, #417946-01)

The registrant provided an explanation of the inconsistencies noted in the 1989 version of "A Summary of Simazine Data in Ground and Surface Water" (MRID #414180-01). The clarification of the questions posed by the Agency is acceptable.

3) "Summary of Simazine Groundwater Monitoring Program" (MRID #406144-26)

A retrospective ground-water monitoring study was conducted by Ciba in 1986 - 1987 to determine whether simazine would leach to ground water in vulnerable areas under normal field use. Nineteen monitoring wells were installed in 11 counties in the U.S., and sampling was conducted on a quarterly basis for two years. Results indicated that 46 out of 154 samples contained simazine detections.

Wells were located on farms with a documented history of simazine use. Ten hydrogeologically vulnerable areas were selected based on aquifer usage, permeability of the unsaturated zone, and hydrogeologic setting of the recharge zone; LEACH was used to assess soil characteristics. The criteria used to choose the individual farms included a history of simazine usage at normal application rates, location above a sensitive aquifer, permeable soils, and an absence of point sources.

Sites were chosen in Jefferson County, WV (apples, corn); Hardee County, FL (citrus); Palm Beach County, FL (citrus); Sussex County, DE (corn); Jackson County, IN (corn); Berrien County, MI (asparagus); Van Buren County, MI (asparagus); Winnebago County, IL (corn); Tulare County, CA

(citrus/olives); Tulare County, CA (citrus); and Fresno County, CA (citrus). Three to five borings, located in an estimated upgradient position with respect to ground-water flow, were drilled on each site. These were used to determine the direction of ground-water flow for the installation of the well clusters (California sites had one well only).

Results indicated that simazine residues were detected in 30% of the ground water samples at concentrations ranging from 0.27 - 1.4 ppb. The registrant attributed all but one percent of these detections to either point source phenomena (14%), karst susceptibility (8%), or off-site sources of simazine (7%). The Agency questions the conclusions presented by the registrant since insufficient information is present in the submitted report to verify or understand several extremely important factors related to the movement of pesticide residues to ground water. These include:

- the direction of ground-water flow with respect to the well cluster on each site,
- the exact location of all of the wells,
- the depths of all of the wells screens with respect to the top of the water table,
- the dates of the applications on all of the sites, and the amounts of active ingredient applied per acre,
- the dates that the first ground-water samples were taken relative to the simazine applications,
- the size of each study area,
- the amount of precipitation and irrigation received on each site, and
- the ambient temperatures at the sites.

The Agency does not agree that "based on these results, simazine does not appear to be leaching to ground-water in hydrogeologically vulnerable areas" as is stated in the Executive Summary of the document. The retrospective study was conducted in vulnerable areas - karst is a prime example of a vulnerable terrain - and residues of simazine were detected in ground water. The Registrant's explanation for the "point sources" is inadequate as stated above. In addition, "possible off-site sources" appears to indicate that simazine residues moved from a location other than the study site to the wells located on the site; i.e, a clear indication that residues are mobile and persistent enough to contaminate ground water.

Another serious problem with the submitted study concerns the fact that there was no monitoring for simazine degradates in ground water. Without degradate information, no valid conclusions can be drawn from the study about the leaching potential of this chemical.

4) Simazine use data for the United States were submitted on diskettes and in hardcopy (MRID #416496-02). The data include simazine use on:

- fruit trees and sweet corn for 1988 and 1989 by total U.S. and region,
- aquatic use in wastewater and utility cooling ponds,
- Ciba Agricultural Division's "Shipped To" data by state,
- alfalfa use for 1988 and 1989 by state and in total,
- field corn use in 1988 and 1989 by state and for the U.S., and by county for Maryland,

Ohio, and Pennsylvania,
- nonagricultural markets,
- apples by state and county for 1988 and 1989,
- citrus, grape, and nut trees data by region, and
- crop and county use in California and Florida for 1988 and 1989.

These data have been incorporated into the EPA document entitled "Water Resources Impact Analysis for the Triazine Herbicides" (presently in house).

Study Reference	No. of Wells Tested	No. of Wells Positive for Simazine (%)	Detection Limit (ppb)	Method	Range of Concentrations (ppb)	Sampling Period	Irrigation Used (Y/N)	Comments
Pionke et al., 1988	20	7 (35%)	0.015	GC	0.010 - 0.170	12/85 - 8/86	N	Mahantango Creek Watershed. Well depths between 49 - 98 feet.
Williams et al., 1988	1842	139 (8%)	N/A	N/A	0.00 - 16	N/A	N/A	EPA Pesticides in Ground Water Database (1988)
Stumpf, 1987	35	5 (14%)	0.01	N/A	1 - 16	6/87 - 7/87	N/A	Assess relationship of pesticides and nitrate in ground water
Welling et al., 1986	12	7 (58%)	0.01	HPLC/GC	0.1 - 0.75	1/86	Foggers	California
Weaver et al., 1983	217	5 (2%)	0.5	GC/MS	0.5 - 3.5	5/82 - 7/82	N/A	California
Koterba, 1989	64	1 (2%)	0.1	N/A	0.2	7/88	N/A	Delmarva Peninsula
Connecticut DEP, 1988	31	1 (3%)	N/A	N/A	9.1	8/87	N/A	Connecticut
Ritter, 1988	17	5 (29%)	N/A	N/A	0 - 67	8/84 - 8/86	solid set sprinkler	Chesapeake Bay Watershed
Budell, 1989	9	7 (78%)	N/A	N/A	0 - 20.8	9/87 - 1/89	N/A	DuPont field study, Waverly, FL
USGS, 1987	7	1 (14%)	0.1	GC	0.2	4/84 - 3/85	N/A	Central FL surficial aquifer

Study Reference	No. of Wells Tested	No. of Wells Positive for Simazine (%)	Detection Limit (ppb)	Method	Range of Concentrations (ppb)	Sampling Period	Irrigation Used (Y/N)	Comments
Moore et al., 1986	69	1 (1%)	0.01 or 0.06	N/A	0 - 0.59	6/85 - 11/85	N/A	Southwest FL
Spalding et al., 1980	14	0 (0%)	N/A	GC-GCMS	0	8/78	N/A	Nebraska (area of limited use)
Montgomery et al., 1987	100	0 (0%)	N/A	N/A	0	1985/1986	N/A	SE North Dakota
Baker et al, 1989	259	7 (3%)	N/A	GC, N/P	0.08 - 1.81	3/88 - 3/89	N/A	Ohio, biased towards private water systems
USGS, 1984	28	1 (4%)	0.1	GC	0.1	8/83 - 10/83	N/A	Maryland water supply wells
Chen and Druliner, 1987	57	1 (2%)	0.1	GC/GC-MS	0.1	1984	N/A	Nebraska High Plains Aquifer (focus on atrazine and nitrate)
USGS, 1989	173 171	2 (1%) 4 (2%)	N/A	N/A	0.10 - 0.76	N/A	N/A	WATSTORE
Klaseus et al., 1988	100 500	1 (1%) 1 (0.2%)	0.08	GC	0.49 - 2.58	7/85 - 6/87	N/A	Minnesota Department of Agriculture
Roux Associates, 1988	21	10 (48%)	0.25 or 0.01	GC-GC/MS	0 - 1.4	2/86 - 12/87	N/A	Large-scale retrospective study; 7 states
Roux Associates, 1989	47	29 (62%)	0.1 or 1	GC-GC/MS	0.12 - 12.6	7/88 - 9/89	N/A	Domestic supply wells, FL; depth less than 70 feet

Study Reference	No. of Wells Tested	No. of Wells Positive for Simazine (%)	Detection Limit (ppb)	Method	Range of Concentrations (ppb)	Sampling Period	Irrigation Used (Y/N)	Comments
Brown et al., 1986	657 652	79 (12%) 79 (12%)	varies	N/A	0.1 - 3.5	N/A	varies	California
Comstock, 1988	250	1 (0.4%)	1	N/A	0 - 3.4	4/86 - 12/87	N/A	Vermont; all wells within 500 feet of treatment area
Bennett, 1987	5	5 (100%)	0.25	GC	0.27 - 2.2	1/87	N/A	Edmund, WI
Monsanto, 1989	1200 1430	15 (1%) 13 (0.9%)	0.01	GC	0 - 0.29	9/88 - 3/89	N/A	unpublished data from large-scale retrospective study
Habecker, 1989	36	3 (8%)	N/A	N/A	1.1 - 27	varies	N/A	Known point source, WI
CA Dep't of Health Services	1814	1 (0.06%)	N/A	N/A	0.4 - 0.8	3/87	N/A	Monthly report
USEPA, 1990	1572	122 (8%)	N/A	N/A	0.02 - 800	N/A	N/A	STORET database
Wigton and Ruedisili, 1990	80	31 (39%)	N/A	N/A	83.862 - ??	4/89 - 12/89	N/A	Ottawa County
Exner and Spalding, 1990	2260	303 (13%)	0.01	GC	N/A	1975 - 1/89	N/A	Nebraska
Contos, 1990	57	20 (35%)	N/A	N/A	0.5 - 12.6	4/88 - 12/89	N/A	Highlands County, FL

NOTE: Above information taken from the 1990 and 1991 submissions. When a discrepancy was noticed, the 1991 data was typed in bold.
N/A denotes information not available.

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
SIMAZINE
Last Update on April 6, 1993
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

LOGOUT	Reviewer: GW	Section Head: DW / No EB	Date: 4/7/93

Common Name:SIMAZINE
Smiles Code:Cl-c(nc(n1)NCC)nc1NCC
PC Code # : 80807 CAS #:122-34-9 Caswell #:

Chem. Name :2-CHLORO-4,6-BIS(ETHYLAMINO)-s-TRIAZINE

Action Type:Herbicide

Trade Names: AQUAZINE; CEKUSAN; GESATOP; PRIMATOL S; PRINCEP; SIMADEX
(Formul'tn): WP 80%; WATER DISP. GARN.; LIQUIFIEDS; GRANULES
Physical State:

Use : CONTROL OF MOST ANNUAL GRASSES AND BROADLEAF WEEDS IN CORN,
Patterns :ESTABLISHED ALFALFA, ESTABLISHED BERMUDA GRASS,CHERRIES,
(% Usage) :PEACHES, CITRUS, CANEBERRIES, CRANBERRIES, GRAPES, APPLES
:

Empirical Form: $C_7H_{12}ClN_5$
Molecular Wgt.: 201.66 Vapor Pressure: 6.10E -9 Torr
Melting Point : °C Boiling Point: °C
Log Kow : 2.51 pKa: @ °C
Henry's : 3.20E-10 Atm. M3/Mol (Measured) 4.62E-10 (calc'd)

Solubility in ...				Comments
Water	3.50E	ppm	@20.0 °C	
Acetone	E	ppm	@ °C	
Acetonitrile	E	ppm	@ °C	
Benzene	E	ppm	@ °C	
Chloroform	E	ppm	@ °C	
Ethanol	E	ppm	@ °C	
Methanol	E	ppm	@ °C	
Toluene	E	ppm	@ °C	
Xylene	E	ppm	@ °C	
	E	ppm	@ °C	
	E	ppm	@ °C	

Hydrolysis (161-1)
[V] pH 5.0:STABLE
[V] pH 7.0:STABLE
[V] pH 9.0:STABLE
[ ] pH :
[ ] pH :
[ ] pH :

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PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
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Photolysis (161-2, -3, -4)
[V] Water:Direct photolysis is not an important degradation
[ ] :mechanism for simazine; stable during 30-day exposure
[ ] :
[ ] :

[ ] Soil :
[ ] Air :

Aerobic Soil Metabolism (162-1)

	SOIL	APPL	% FC	T1/2
[S]	SdLm	2 MG/KG	98.3	36 DAYS
[ ]	SdLm	8 MG/KG	56.9	234 DAYS

[ ] (BOTH AT 15 C; AT 25 C AND 75%
[ ] FC, T1/2 EXPECTED = 60 DAYS)
[S] AT APPL OF 4 LB AIA TO LmSd,
[ ] T1/2 = 16.3 WEEKS

Anaerobic Soil Metabolism (162-2)
[ ]
[ ]
[ ]
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[ ]

Anaerobic Aquatic Metabolism (162-3)
[ ]
[ ]
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Aerobic Aquatic Metabolism (162-4)
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PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
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Soil Partition Coefficient (Kd) (163-1)

	Sd	Si	Cl	%OM	Kads	Kdes
[ ]						
[V]	25	33	42	4.8	4.31	9.34
[V]	96	2	2	0.9	.65	2.25
[V]	63	20	17	1.9	1.27	6.20
[V]	44	47	9	0.8	.48	.78
[ ]						

Soil Rf Factors (163-1)
[S] MODERATELY TO VERY MOBILE
[ ] IN 4 SOILS; SOILS ON LEFT
[ ] RETAINED 58, 13, 11, AND 4%
[ ] IN TOP 2 CM OF COLUMN WASHED
[ ] WITH 20" WATER.
[S] .96 IN SdLm; .31 IN SiLm

Laboratory Volatility (163-2)
[ ]
[ ]

Field Volatility (163-3)
[ ]
[ ]

Terrestrial Field Dissipation (164-1)
[S] PHYTOTOXIC RESIDUES EQUIV, TO SIMAZINE AT 0.6 LB/ACRE
[ ] REMAINED IN THE SURFACE FOOT OF A FURROW-IRRIGATED SiLm
[ ] SOIL FOR A YEAR AFTER THE LAST OF 6 ANNUAL APPL. OF 1 LB/A.
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Aquatic Dissipation (164-2)
[S] SIMAZINE RESIDUES APPEARED TO PERSIST FOR 3 YRS IN THE SOIL
[ ] ON SIDES AND BOTTOMS OF IRRIGATION DITCHES TREATED AT 22.4
[ ] KG/HA.
[S] DISSIPATION IN 7 LAKES RECEIVING APPL OF .25 OR .50 PPM,
[ ] T1/2'S RANGED FROM 60 TO 700 DAYS.
[ ]

Forestry Dissipation (164-3)
[ ]
[ ]

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
SIMAZINE
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Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[ ]
[ ]

Accumulation in Rotational Crops, Field (165-2)
[ ]
[ ]

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[S] RAINBOW TROUT BCF FOR SIMAZINE = .9 - 2.3 X; BCF FOR 2
[ ] DEGRADATES RANGED FROM 0.5 TO 8.5 X.

Bioaccumulation in Non-Target Organisms (165-5)
[S] GREEN SUNFISH DO NOT BIOACCUMULATE SIMAZINE; SAME
[ ] FOR BLUEGILL, CATFISH, AND BASS.

Ground Water Monitoring, Prospective (166-1)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Small Scale Retrospective (166-2)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Large Scale Retrospective (166-3)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Miscellaneous Data (158.75)
[ ] Simazine residues have been detected in ground-water in 19 states
[ ] Concentrations range from 0.001 - 67.0 ppb (Pesticides in Ground
[ ] Water Database, 1992).

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
SIMAZINE
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Field Runoff (167-1)
[ ]
[ ]
[ ]
[ ]

Surface Water Monitoring (167-2)
[ ]
[ ]
[ ]
[ ]

Spray Drift, Droplet Spectrum (201-1)
[ ]
[ ]
[ ]
[ ]

Spray Drift, Field Evaluation (202-1)
[ ]
[ ]
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Degradation Products

See chart in folder for identification of code names
% Radioactivity in aged soil samples treated with simazine at 10 kg/ha (see study #7 for details):

COMPOUND	LOAMY SAND	SILT LOAM
Simazine	63.4	55.2
G-28279	3.7	3.9
G-28273	1.1	0.7
G-30414	ND	11.0
GS-17792	ND	1.7

Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
SIMAZINE
Last Update on April 6, 1993
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

Comments

SOIL	COEFF.	SIMAZINE	G-28273	G-28279	G-30414
1	Kads	4.31	1.56	2.73	483
2	"	.65	.16	.16	8.48
3	"	1.27	.65	.51	27.40
4	"	.48	.36	.27	42.40
1	Kdes	9.34	7.79	12.36	423
2	"	2.25	(too limited to tell)		25.5
3	"	6.20	8.06	15.28	318
4	"	.78	6.87	6.98	125

(Soil compositions, and simazine ads. and des., shown on page 2)

Reported Koc = 103.
pKb = 12.35

References: EPA REVIEWS
Writer : PJH, EW