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

JUL 11 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Simazine (Herbicide) - Second Round Review - Environmental Fate and Ground-Water Branch Science Chapter

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Attached are the Environmental Fate and Ground Water Branch (EFGWB) Second Round Review (SRR) Science Chapter and the EFGWB Data Requirements for the herbicide SIMAZINE. The first Registration Standard for this pesticide was issued in 1984.

SIMAZINE is the common name for 2-chloro-4,6-bis(ethylamino)-s-triazine. It is a herbicide belonging to the triazine family

of herbicides. Simazine is a pesticide registered for uses on terrestrial food crops, terrestrial nonfood crops, noncrop sites, and aquatic nonfood sites. Forestry uses (tree plantations grown for timber and tree seedlings), all uses on alfalfa, uses on drainage ditch banks, forage Bermuda grass and hay, and grass grown for seed in the Pacific Northwest were cancelled prior to January 13, 1989 (Qualitative Use Assessment for Simazine, January 13, 1989).

Simazine may be applied preemergence, preplant incorporated, at planting, or postemergence. Its mode of action is inhibition of the Hill reaction of photosynthesis. Application rates vary with the use pattern: a) terrestrial food crops (0.8 to 10 lb ai/A); b) terrestrial nonfood crops (0.8 to 4.0 lb ai/A); c) noncrop sites (4.0 to 40.0 lb ai/A); d) aquatic (water treatment) sites (0.8 to 12.0 lb ai/A) for drained ponds and fish hatcheries; 1.35 to 6.75 lb ai/A ft for ponds; 0.03 to 0.21 lb ai/10,000 gal water for swimming pools). Applications may be made using ground equipment or aircraft.

Single-active ingredient formulations consist of 0.63 to 0.75 and 4 to 90% Granular; 2.5 to 90% Pelleted/Tableted; 3, 80, and 90% Wettable Powder; 90% Dry Flowable; 4 lb/gal and 1% Emulsifiable Concentrate; 4 lb/gal and 0.6% Flowable Concentrate; 4 lb/gal and 0.1 to 80% Soluble Concentrate/Liquid; 0.08 to 0.6% RTU. Simazine may also be formulated together with other herbicides such as alachlor, atrazine, bromacil, glyphosate, paraquat dichloride, and sodium chlorate.

STATUS OF DATA REQUIREMENTS

Table I compares the status of data requirements in the 1984 Registration with the status of data requirements at the time of the Second Round Review.

Specific Comments

1. Mobility in soil studies. Batch-equilibrium adsorption/desorption studies of simazine and its degradates G-28273, G-28279, and G-30414 were submitted and reviewed. The studies performed with G-28273 and G-28279 (which are also degradates of atrazine) were found to be acceptable at the time of the ATRAZINE Second Round Review (November 18, 1989). The studies involving simazine and G-30414 could have been acceptable upon submission of additional information. However, a data audit conducted by Dr. Willa Garner, USEPA Office of Compliance Monitoring (OCM) at Cambridge Analytical Associates (which performed all of these studies) showed irregularities in the data (overwrites and

improperly executed corrections; incomplete documentation of data). Therefore, new studies will be required. Enforcement action by OCM is due to be taken based on the audit findings irrespective of OPP's response.

2. Photodegradation in water; Photodegradation on soil; Aerobic soil metabolism; Aerobic aquatic metabolism. New studies were submitted after the 1984 Registration Standard. However, none of these studies fulfill data requirements. The photodegradation in water and on soil studies and the aerobic soil metabolism study were considered to provide supplemental information only. The aerobic aquatic metabolism study was unacceptable.

3. Terrestrial field dissipation studies. No fully acceptable field dissipation studies are available. The highest recommended application rate is 40 lb ai/A (terrestrial noncrop sites). However, the highest application at which any of the submitted studies have been conducted is 20 lb ai/A (bareground studies performed in Minnesota and California). Therefore, even if the studies had been fully acceptable, registration for application rates above 20 lb ai/A would not have been supported. New studies are being requested. To support registration for uses on turf, field dissipation studies on turf must also be conducted.

4. Accumulation in rotational crops (confined). This study was conducted at an application rate of 2 lb ai/A. The maximum application rate for terrestrial food crops is 10 lb ai/A. Rotational crops were planted at 120-day posttreatment. For small-grain crop (spring wheat) and soybeans, there was indication that ^{14}C-uptake increased with plant maturity. For leaf (lettuce) and root crops (sugar beets), residues were still present when harvested. Thus, an appropriate rotation interval could not be established from this study. New studies with longer rotation intervals (up to 1 year) must be conducted. If residues of concern are still present after 1 year, then the registrant has the following options: a) conduct a field study; b) petition the Dietary Exposure Branch (DEB/HED) suitable tolerances for all crops expected to be rotated; c) reduce application rates.

Table I

		1984	Second Round Review
161-1	Hydrolysis	Fulfilled	Fulfilled
161-2	Photodegradation in water	Data requested	Data submitted. Not fulfilled (see specific comments)
161-3	Photodegradation on soil	Data requested	Data submitted. Not fulfilled (see specific comments)
162-1	Aerobic soil metabolism	Partially	Data submitted. Not fulfilled (see specific comments)
162-2	Anaerobic soil metabolism	Fulfilled	Fulfilled
162-3	Anaerobic aquatic metabolism	Data requested	Fulfilled
162-4	Aerobic aquatic metabolism	Data requested	Data submitted. Not fulfilled (see specific comments)
163-1	Mobility in soil	Partially	New studies required (see specific comments)
163-2	Volatility (lab)	Not required because of the low vapor pressure of simazine	
163-3	Volatility (lab)	Not required because of the low vapor pressure of simazine	
164-1	Field dissipation (terrestrial, short term)	Partially	Partially (see specific comment)
164-2	Field dissipation (aquatic)	Partially	Partially
164-3	Field dissipation (forestry)	Data requested	Forestry uses have been cancelled. Not required
164-5	Field dissipation (long-term)	Triggered by 164-1	Triggered by 164-1
164-4	Combination and tank mixes	This requirement is not currently being imposed	
165-1	Accumulation - Rotational crops (confined)	Data requested	Data submitted. Not fulfilled (see specific comments)
165-2	Accumulation - Rotational crops (field)	Data requested	Triggered by 165-1 (see specific comments)
165-3	Accumulation - Irrigated crops	Data requested because of uses on drainage ditch banks	Uses on drainage ditch banks have been cancelled. Not required
165-4	Accumulation in fish	Fulfilled	Fulfilled
165-5	Accumulation in aquatic nontarget organisms	Fulfilled	Fulfilled

ENVIRONMENTAL FATE ASSESSMENT

Some data gaps still exist to fully and accurately assess the environmental fate of simazine. Available data (either fully acceptable or supplemental) indicate that simazine (like atrazine) is persistent in soils and in aqueous systems under anaerobic conditions and that it is mobile in soils.

In soils under aerobic conditions, there is evidence that simazine degrades with half-lives greater than 100-days. Under anaerobic conditions, half-lives were even longer (greater than 1 year). Unfortunately, no acceptable terrestrial field dissipation studies are available that could provide information on the behavior of simazine under actual field conditions.

From aquatic field dissipation data (supplemental information), simazine degraded with half-lives ranging from 3 to 7 days (swimming pool water) and 7 to 14 days (surface waters in man-made pond). The faster degradation of simazine under aquatic field conditions may be a combination of aerobic microbial degradation and photodegradation. The latter could be the result of the presence of photosensitizers or other chemical species (such as hydroxyl radicals) capable of inducing photoreactions.

Three main types of degradates/metabolites of simazine can be formed: a) the dealkylated degradates, b) the degradates in which the chloro group is replaced by a hydroxyl group, and c) degradates in which the chloro group has also been replaced by a hydroxyl group together with partial or complete dealkylation. Structures of these degradates are attached to this memorandum.

From supplemental soil thin-layer chromatography studies there is evidence that the degradate known as "hydroxy simazine" is less mobile than parent simazine or the dealkylated degradates (G-28273 and G-28279). These two degradates appear to be the most mobile; they are also known to be degradates of atrazine. However, no reliable data from batch-equilibrium adsorption/desorption studies is currently available (see Specific Comment #1, Status of Data Requirements) that allows correlation between sorption coefficients and physical/chemical properties of soils for simazine and its main degradates.

There is evidence from the confined rotational crop study that simazine tends to accumulate in mature spring wheat and soybean whole plant samples when these crops were planted at 120-day posttreatment. The study could not be

used to establish rotational crop intervals because at the only interval studied residues were still found. Also the study was not conducted at the maximum application rate for terrestrial food crop uses, as required by Subdivision N Guidelines. In fish or in other aquatic organisms, simazine was found to have a low tendency to accumulate.

In conclusion, because of its persistence and its mobility in soil, simazine not only can be expected to move vertically through the soil (that is, to leach) and reach ground water, but also to be transported from soil surfaces to surface waters during run-off events.

GROUND WATER CONTAMINATION ASSESSMENT

Sufficient data are available to indicate that simazine can leach to ground water in measurable quantities in hydrogeologically vulnerable areas as a result of registered uses. However, data are not available to assess the impact in other usage areas.

- o Simazine is both mobile and persistent in the environment based on its physicochemical properties.

- o EPA's Pesticides in Ground Water Data Base (Williams et al., 1988) documents findings of simazine in ground water as a result of registered application in several States including California, Connecticut, Maryland, Nebraska and Pennsylvania. Several detections have approached or exceeded the current Office of Drinking Water's Maximum Contaminant Level Goal (MCLG) of 4 ppb. The available data does not provide a statistical representation of simazine usage areas.

- o From a preliminary review of a retrospective ground-water monitoring study submitted by CIBA-GEIGY (De Martinis, 1988) useful information was obtained on the ground-water potential of simazine in hydrogeologically vulnerable settings (areas with permeable sands, ground water less than 30 feet deep, and/or karst geology). Simazine was detected at 0.25 ppb or greater in 6 of 11 sites across the country. The limited extent of the study

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- De Martinis, J. (1988) "Summary of Simazine Monitoring Program", Laboratory Study No. CG 0281.3.88, Roux Associates, Inc.

- Williams, W.M.; Holden, P.W.; Parsons, D.W.; Lorber, M.N. (1988) "Pesticides in Ground Water Data Base: 1988 Interim Report", United States Environmental Protection Agency, Office of Pesticide Programs, Washington, DC.

and the low intensity of sampling (quarterly from each well) does not allow the study to make nationwide assessments of the extent of simazine in ground water. A detailed review of this study will be completed before the Standard is finalized.

- The preponderance of data indicating the leaching of atrazine to ground water in a variety of use areas also suggests that simazine (which has a chemical structure very closely related to atrazine) will also leach to ground water, if used in similar areas at a similar intensity.

OCCURRENCE OF SIMAZINE IN SURFACE WATERS

This information is provided to give a general impression of the occurrence of this chemical in surface waters as reported in the STORET database. The individual data points retrieved were used as they came from STORET and have not been confirmed as to their validity. STORET data are often not valid when individual numbers are used out of the context of the entire sampling regime, as they are here. Therefore, this information can only be used to form an impression of the intensity and location of sampling for a particular chemical.

SIMAZINE SURFACE (UG/L)
STORET CODE(S) 39025, 39055
-- HITS ONLY --

STATE	NUM HITS	MAX HIT	MIN HIT
CA	92	1300.00*	0.005
CO	1	0.30	0.300
IL	1	0.26	0.260
IN	1	0.81	0.810
KY	1	0.34	0.340
MD	18	0.20	0.020
MI	31	4.95	0.070
MN	2	0.06	0.050
ND	10	0.90	0.100
NE	17	1.00	0.100
OH	205	10.77	0.084
OR	1	0.66	0.660
PA	472	21.00	0.009
TX	52	2.50	0.100
VA	25	0.39	0.010
WI	11	3.00	0.100
WV	1	0.04	0.040

*Value appears to be erroneous.

Besides the inherent physical/chemical properties of simazine (persistence in water and on soils; mobility in soil), there is evidence that lateral transport of simazine is driven by the hydrologic cycle and is, therefore, a function of precipitation patterns. Brinsfield and Staver[1] have reported that convective storms occurring shortly after pesticide application can produce surface run-off with pesticide concentrations in excess of 200 ppb for conventional and no-tillage practices. According to the authors, no-tillage appears to reduce the run-off volume, thus reducing the flux of pesticide transported. Suspended particles also carry pesticide attached to suspended particulate matter, but this suspended particulate matter is relative small compared to the pesticide carried by water. The effect of settling particulate matter on submerged vascular plants in receiving water is, however, largely unknown.

At the request of the Ecological Effects Branch (EEB), EFGWB is reserving the requirements for surface run-off monitoring studies. The need for these studies will be triggered by the results from the Simulated or Actual Field Testing (Aquatic) studies requested by EEB on March 8, 1989.

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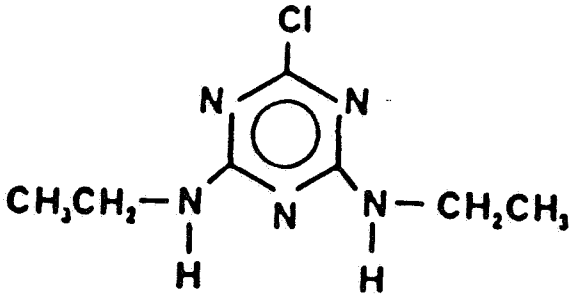
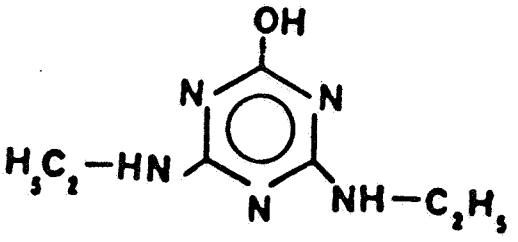
[1]Brinsfield, R.B and Staver, K.W. Impact of tillage on pesticide transport from Atlantic coastal plain soils. Paper presented at the Agrochemicals Division, 197th. American Chemical Society Meeting, Dallas, TX, April 9-14, 1989.



2-Chloro-4,6-bis(ethylamino)-
s-triazine

Simazine

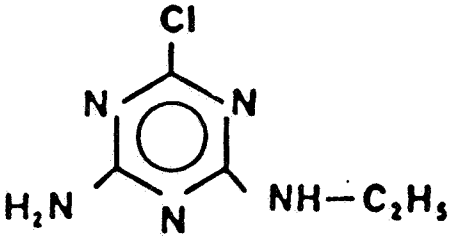
Hydroxylated analog ("hydroxy simazine"):



2-Hydroxy-4,6-
bis(ethylamino)-s-triazine

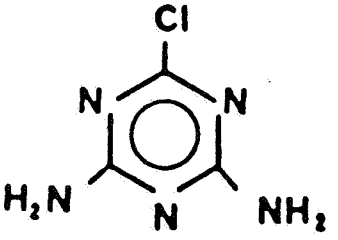
(G-30414)

Dealkylated degradates:



2-Amino-4-chloro-6-
ethylamino-s-triazine

(G-28279)

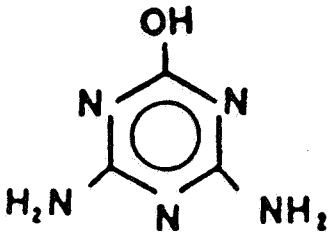


2,4-Diamino-6-
chloro-s-triazine

(G-28273)

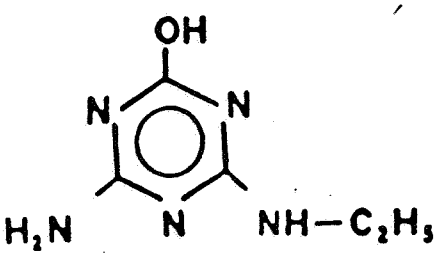
These two degradates are also major degradates of atrazine.

Dealkylated hydroxylated degradates:



2,4-Diamino-6-
hydroxy-s-triazine

(GS-17791)

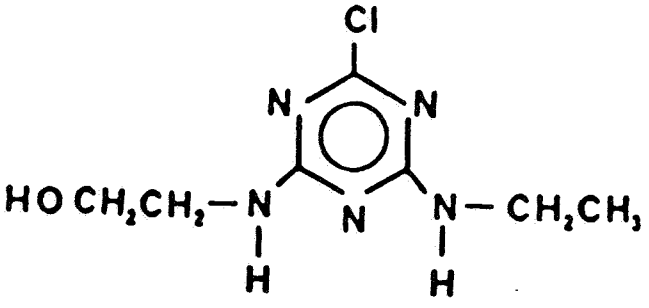


2-Amino-4-hydroxy-6-
ethylamino-s-triazine

(GS-17792)

(Has also been reported as
a degradate of atrazine)

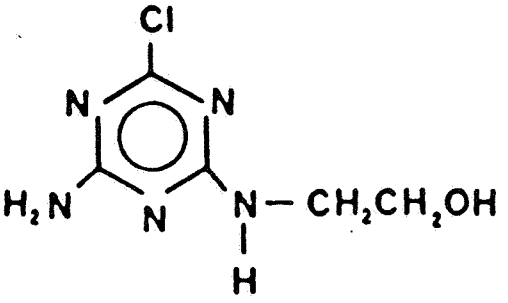
Alkyl-group hydroxylated degradate:



2-Chloro-4-ethylamino-6-
hydroxyethylamino-s-triazine

(G-28516)

Dealkylated/alkyl-group
hydroxylated degradate:



4,6-Diamino-N-(2-hydroxyethyl)-
1,3,5-triazin-2-(1H)-one

(CGA-62373)

Table A
Generic Data Requirements for Simazine (Herbicide)

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data to Satisfy This Requirement?	Bibliographic Citation 3/	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.290 Environmental Fate					
Degradation Studies - Lab					
161-1 - Hydrolysis	TGAI or PAIRA	A,B,D,H	Yes	00027856	No
Photodegradation					
161-2 - In Water	TGAI or PAIRA	A,B,D,H	Partially	00143171	Yes 4/
161-3 - On Soil	TGAI or PAIRA	A	Partially	40614410	Yes 5/
161-4 - In Air	TGAI or PAIRA	A	No	—	No 6/
Metabolism Studies - Lab					
162-1 - Aerobic Soil	TGAI or PAIRA	A,B,H	Partially	00158638	Yes 7/
162-2 - Anaerobic Soil	TGAI or PAIRA	A	Yes	00027857,40614411	No 8/
162-3 - Anaerobic Aquatic	TGAI or PAIRA	D	Yes	40614411	No
162-4 - Aerobic Aquatic	TGAI or PAIRA	D	No	—	Yes 9/
Mobility Studies					
163-1 - Mobility in Soil	TGAI or PAIRA	A,B,D,H	Partially		Yes 10/
a. Batch Equilibrium Adsorption/ Desorption					
b. Soil TLC				00158631,00158637, 40431333,40431331	
c. Column Leaching					

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data to Satisfy This Requirement?	Bibliographic Citation 3/	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
§158.290 Environmental Fate (cont'd)					
Mobility Studies (cont'd)					
163-2 - Volatility (Lab)	TEP	A	No	—	No 6/
163-3 - Volatility (Field)	TEP	A	No	—	No 6/
Dissipation Studies - Field					
164-1 - Soil	TEP	A,B,H	No	—	Yes 11/
164-2 - Aquatic (Sediment)	TEP	D	Partially	40614420,40614422	Yes 12/
164-3 - Forestry			No		No 13/
164-4 - Combination and Tank Mixes	—	—	No	—	No 14/
164-5 - Soil, Long-term	TEP	A	No	—	Reserved 15/
Accumulation Studies					
165-1 - Rotational Crops (Confined)	PAIRA	A	Partially	40614423	Yes 16/
165-2 - Rotational Crops (Field)	TEP	A	No	—	Reserved 17/
165-3 - Irrigated Crops	TEP	—	No	—	No 18/
165-4 - In Fish	PAIRA or TGAI	A,B,D	Yes		No 19/
165-5 - In Aquatic Nontarget Organisms	TEP	D	Yes		No 20/

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Data Requirement	Composition 1/	Use Patterns 2/	Does EPA Have Data to Satisfy This Requirement?	Bibliographic Citation 3/	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?
158.440 Spray Drift					
201-1 - Droplet Size Spectrum	TEP	A,B			Yes 21/
202-1 - Drift Field Evaluation	TEP	A,B	No		Yes 21/
158.75 Other Data					
- Groundwater Monitoring Studies	—	—	—	De Martinis (No MRID assigned yet)	Reserved 22/
- Surface Run-off Monitoring Studies	—	—	—	—	Reserved 23/

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Footnotes

1/Composition: TGAI = Technical Grade of the Active Ingredient; PAIRA = Pure Active Ingredient, radiolabeled; TEP = Typical End-Use Product.

2/The use patterns are coded as follows: A = Terrestrial, food crop; B = Terrestrial, nonfood; C = Aquatic, food crop; D = Aquatic, nonfood; E = Greenhouse, food crop; F = Greenhouse, nonfood, G = Forestry; H = Domestic Outdoor; I = Indoor.

3/EPA MRID Numbers.

4/The cited study provides supplemental information only. Several deficiencies were noted in the study: a) test solutions were not buffered and the pH of the unbuffered water was not specified; b) the test substance was incompletely characterized; c) the temperature of the samples was not specified; d) the spectral energy distribution of the artificial light source (mercury vapor lamp) was inadequately described; e) the intensity and wavelength distribution of the artificial light source were not compared to natural sunlight. A new study is required for which use of natural sunlight irradiation is recommended.

5/Study 00158629 is an unacceptable Interim Report to the final report 40614410. Only the portion of 40614410 conducted under natural sunlight irradiation was considered to provide supplemental information. Identification of degradates (by TLC using only one solvent) was unsatisfactory. The temperatures at which the study was conducted (Fall-Winter; Madison, WI) were unacceptably low and not comparable to temperature that are usually found following simazine application under field conditions. A new, adequate study is required.

6/No data are required because the vapor pressure of simazine is low.

7/Study 00158638 provides supplemental information only. Not all the degradates detected above 0.01 ppm were identified. The study was conducted with a foreign (Swiss) silt soil and the registrant did not show that the properties of this soil were characteristic of typical, agricultural USA soils. Also, it was not clear from the report if the incubation of samples was done in the dark. A new study is required.

8/The study 00027857 provides supplemental information, but the study could be acceptable if the registrant submits adequate additional information (characterization of test water and soil; comparison of foreign soil with USA soils). However, an acceptable anaerobic aquatic metabolism study (40614411) is available, which may be used to fulfill data requirements for anaerobic soil metabolism study. Therefore, no new studies are required.

9/The reviewed study (00158639) was considered unacceptable. Therefore, a new study is required.

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Footnotes

10/New batch-equilibrium adsoprtion/desorption studies with simazine and its degradate are required. Enforcement action is due to be taken by the Agency's Office of Compliance Monitoring (OCM) as a result of a data audit conducted by the OCM at Cambridge Analytical Associates, Boston, MA (which had performed all of the submitted adsorption/desorption studies: 00158630, 00158638, 40431327, 40431325) which showed irregularities in the data (overwrites and improperly executed corrections; incomplete documentation of data). Enforcement action by OCM is irrespective of OPP's response. Supplemental information on the relative mobility of simazine and its degradates may be obtained from the soil thin-layer chromatography studies 00158631, 00158637, 40431333, and 40431331.

For the new batch-equilibrium adsorption/desorption studies, an aquatic sediment should be included to support registration for aquatic uses. Also, studies with other degradates besides G-30414, G-28273, and 28279 may be required depending on the results of valid aerobic soil aquatic metabolism studies.

11/Studies 40614417, 40614418, 40634201, 40634202 (part of the study conducted in a citrus grove), 40614415, 40614416, 40614413, 40614414 were considered unacceptable because the data was too variable to accurately assess the dissipation rate of simazine. The maximum application rate used in these studies was 20 lb ai/A) bareground studies 40614417 and 40614418), which is half the maximum application rate of 40 lb ai/A recommended for terrestrial nonfood sites. Supplemental information can be obtained from study 406334202 (bareground part only). Studies 00027859, 00065585 do not conform to current Subdivision N Guidelines.

New terrestrial field dissipation studies are required. The registrant should be informed that a new Standard Evaluation Procedure for terrestrial field dissipation studies will be available (from NTIS) in the Summer of 1989.

To support registration for uses on turf, a study conducted on turf is required (two different, typical-use sites).

Submission of protocols for all future terrestrial field dissipation studies is highly recommended.

12/a. Studies conducted in swimming pools: The study conducted at the Iowa site (40614419) is unacceptable. The study conducted at the Georgia site (40614420) provides supplemental information only. None of the studies were conducted at the maximum application rate recommended for this type of use.

b. Studies conducted in ponds: The study conducted at the Georgia site (40614421) is unacceptable. The study conducted at the Iowa site (40614422) provides supplemental information only.

c. Other studies: Aquatic field dissipation studies contained in 00025412 and 00025413 are unacceptable.

13/Forestry uses have been cancelled.

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Footnotes (cont'd)

14/No data are required because data requirements for combination products and tank mix uses are currently not being imposed.

15/This study may be required if results from field dissipation/aerobic soil metabolism studies demonstrate that residues do not reach 50 percent dissipation in soil prior to the recommended subsequent application.

16/From the data reviewed (40614423), at rotational crop interval could not be established (the only interval studied was 120 days) and there was evidence that residues continued to accumulate in mature spring wheat and soybeans. In these studies, the rotation crops were planted after the target crop (corn) was harvested and removed from the pails. The study was conducted at an application rate of 2 lb ai/A. The maximum application rate for terrestrial food crop uses is 10 lb ai/A. Even if the study was acceptable (analytical methodology was incomplete; storage stability data was not provided; crop maintenance and greenhouse maintenance descriptions were incomplete; residues in the organosoluble phase extracted from mature soybeans were not characterized), the study would not have supported registration for uses at application rates higher than 2 lb ai/A. Because larger amounts of residues may occur with higher application rates, a new study should be conducted at the highest application rate showing the level of residues in crops planted after 1 year posttreatment. If residues of concern are still present after a 1-year rotational interval, then the registrant has the following options: a) conduct a field study; b) petition the Dietary Exposure Branch (DEB/HED) suitable tolerances for all crops expected to be rotated; c) reduce application rate(s).

17/If residues of concern still persist after 1-year rotational interval, then the registrant must petition DEB for suitable tolerances for all crops expected to be rotated or reduce application rates.

18/Uses in drainage-ditch banks have been cancelled.

19/Although study 00043670 does not completely conform to current Subdivision N Guidelines, the results of this study and the supplemental information contained in study 00043668 indicate that simazine has a low tendency to accumulate in fish. Therefore, this data requirement can be considered satisfied and no new studies are required.

20/Even though studies 00027984, 00025444, 00027983, 00027985, 00034709, and pertinent portions of studies 00025412 and 0025413 provide supplemental information and do not fully conform to current Subdivision N Guidelines, there is sufficient evidence that simazine has a low tendency to accumulate in aquatic nontarget organisms. Therefore, this data requirement can be considered fulfilled and no new studies are required.

21/These studies are being required by request of the Ecological Effects Branch since simazine can be applied by air. The spray drift droplet spectrum and field evaluation may be done together in order to evaluate the droplet spectrum associated with actual use patterns.

Table A (cont'd)
Generic Data Requirements for Simazine (Herbicide)

Footnotes (cont'd)

22/An additional retrospective ground-water monitoring study be required. EFGWB is requesting information on simazine use in the U.S.A. at the county level for all ma s and all the presently available ground- and surface- water monitoring data on simazine. The data must mpiled by the registrant in the same manner that has been requested for atrazine (letter of E.F. Tinsworth, l Review and Registration Division to atrazine registrants, dated November 12, 1988). These data and supp l monitoring data will be used by the Agency to evaluate the need for any future requirements for monito tudies of simazine.

23/EFGWB is reserving any requirements for surface run-off moni g studies. The need for these studies will be triggered by the results from the Simulated or Actual Field ng (Aquatic) studies requested by EEB on March 8, 1989.

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