

US EPA ARCHIVE DOCUMENT

3/20/91

PHASE IV ENVIRONMENTAL FATE SUMMARY TABLE FOR VINILOZOLIN

Chemical Code : 113201 Reviewer: A. Jones, EFGWB
Pesticide Type: Fungicide Date: March 20, 1991

Uses (LUIS Nov. 6, 1990): Terrestrial Food and Non-Food Crop

| Submitted Studies/Addendums | DER/Addendum Review/Summary Identification | DER/Addendum Review/Summary Review Conclusions | Additional Data/Info Required? |
|-----------------------------|--|--|--------------------------------|
|-----------------------------|--|--|--------------------------------|

PRODUCT CHEMISTRY

160-5. Chemical ID

Satisfies Yes¹

DEGRADATION-LAB:

161-1. Hydrolysis

414710-06
86331 Summary(92194-024)
Study withdrawn^b

Reviewable^a Yes²

Photodegradation:

161-2. In Water

53092
136373
414710-07 Summary(92194-025)

DNS/NSalv/Supp^c Yes³

161-3. On Soil

414710-08
53093
136374 Summary(92194-026)
Study withdrawn
Study withdrawn

Reviewable Yes⁴

161-4. In Air

None

Reserved⁵

PHASE IV ENVIRONMENTAL FATE SUMMARY TABLE FOR VINCLOZOLIN (cont'd)

| | Submitted Studies/ Addendums | DER/Addendum Review/Summary Identification | DER/Addendum Review/Summary Review Conclusions | Additional Data/Info Required? |
|--|----------------------------------|--|--|--------------------------------------|
| <u>METABOLISM-LAB:</u> | | | | |
| 162-1. Aerobic Soil | 88288 136376 136377 | Summary(92194-027) | DNS/Salv/Supp ^d | Yes ⁶ |
| 162-2. Anaerobic Soil | 414710-09 136377 | Summary(92194-028) Study withdrawn | Reviewable | Yes ⁷ |
| 162-3. Anaerob. Aquat. | None ^e | | | Yes ⁸ |
| 162-4. Aerobic Aquatic | None | | | NA ^f |
| <u>MOBILITY STUDIES:</u> | | | | |
| 163-1. Leaching and Adsorp./Desorp. | 414710-10 414969-04 136381 | Summary(92194-029) " " " " | Reviewable | Yes ⁹ |
| 163-2. Volatil.(Lab) | None | | | Yes ⁵ |
| 163-3. Volatil.(Field) | None | | | Reserved ⁵ |
| <u>DISSIPATION-FIELD:</u> | | | | |
| 164-1. Terrestr.(Soil) | 136382 136384 | Study withdrawn Study withdrawn | | SWBSubmitted ⁹ |
| 164-2. Aquat.(Sediment) | None | | | NA |
| 164-3. Forestry | None | | | NA |

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|-----------------------------|--|--|--------------------------------|
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DISSIPATION-FIELD (cont'd)

| | | | |
|-------------------------|------|--|------------------------|
| 164-4. Combin./Tank Mix | None | | NA ¹⁰ |
| 164-5. Long Term Terr. | None | | Reserved ¹¹ |
| 164-5. Long Term Aqua. | None | | NA |

ACCUMULATION STUDIES:

| | | | |
|---|---------------------------|------------------------------------|------------------------|
| 165-1. Conf. Rot. Crops | 94617 136385 | Summary(92194-030) | Yes ¹² |
| 165-2. Field Rot. Crops | 136386 | Study withdrawn | Reserved ¹³ |
| 165-3. Irrigated Crops | None | | NA |
| 165-4. Fish (Lab) | 136387 164582 98256 | Study withdrawn Study withdrawn | Yes ¹⁴ |
| 165-5. Aqua. Non-target Organisms (Field) | None | | NA |

GROUNDWATER MONITORING:

| | | | |
|--------------------------|------|--|------------------------|
| 166-1. Small Prospect. | None | | Reserved ¹⁵ |
| 166-2. Small Retrospect. | None | | Reserved ¹⁵ |
| 166-3. Large Retrospect. | None | | Reserved ¹⁵ |

PHASE IV ENVIRONMENTAL FATE SUMMARY TABLE FOR VINCLOZOLIN (cont'd)

| Submitted Studies/ Addendums | DER/Addendum Review/Summary Identification | DER/Addendum Review/Summary Review Conclusions | Additional Data/Info Required? |
|--------------------------------|--|--|--------------------------------|
| <u>SURFACE WATER:</u> | | | |
| 167-1. Field Runoff | None | | Reserved ¹⁶ |
| 167-2. Surf. Monitoring | None | | Reserved ¹⁶ |
| <u>SPRAY DRIFT:</u> | | | |
| 201-1. Droplet Spect. | None | | Reserved ¹⁷ |
| 202-1. Field Spray Drift Eval. | None | | Reserved ¹⁷ |

KEY DEFINITIONS:

- a) Reviewable - placed in the third column to indicate that based upon a review of the summary identified by MRID# in the second column/same row, EFGWB concludes that the study identified by MRID# in the first column/same row may possibly satisfy or partially satisfy the data requirement, or could possibly be salvageable to do so. Therefore, the study should be reviewed in Phase V.
- b) Study Withdrawn - placed in the second column to indicate that there are no DERs or summaries available for the study identified by MRID# in the first column/same row, but that the registrant has indicated in their Phase III response that another study will be submitted.
- c) DNS/NSalv./Supp. - placed in the third column to indicate that the study or addendum identified by MRID# in the first column/same row does not satisfy (DNS) the data requirement, does not appear to be salvageable (NSalv.) to do so with the submission of additional information or limited data. The results of the study can be used for supplemental information (Supp.).

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- d) DNS/Salv./Supp. - placed in the third column to indicate that the study or addendum identified by MRID# in the first column/same row does not satisfy (DNS) the data requirement, but could possibly be salvageable (Salv.) to do so with the submission of additional information or limited data. The results of the study can be used for supplemental information (Supp.).
- e) None - placed in the first column to indicate that the registrant did not list any studies or addendums in their Phase II and/or III responses for the given data requirement. In addition, EFGWB has no record of any studies or study/addendum combinations satisfying or partially satisfying the data requirement.
- f) NA - placed in last (4th) column to indicate that the data requirement is not applicable to the uses listed in the LUIS report.
- g) SWBSubmitted - placed in the final (4th) column to indicate that one or more studies will be submitted by the registrant as indicated in their Phase III response.

FOOTNOTES:

1. The following product chemistry data were provided to support an environmental fate profile for vinclozolin:

| | |
|--------------------|---|
| Molecular Weight: | 286.11 |
| Empirical Formula: | $C_{12}H_{19}NO_3Cl_2$ |
| Melting Point: | 106-108°C (from <u>Farm Chemicals Handbook, 1991</u>) |
| Solubility: | 2.6 mg/L @20°C |
| Vapor Pressure: | 3.4×10^{-6} mbar at 25°C (2.6×10^{-6} mm Hg) |
| K_{ow} : | 1054 |
| pK_a : | NA |

The registrant's Phase III package indicates that a new melting point study will be submitted.

2. In its Phase II submission, the registrant cited an MRID and an existing study never seen by EPA to support the hydrolysis (161-1) data requirement. After further evaluation, the registrant decided to rely on a more recent study (MRID no. 414710-06) to satisfy this data requirement. This study will be reviewed in Phase V.

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3. In support of the photodegradation in water (161-2) data requirement, the registrant submitted two studies (MRID nos. 53092 and 136373) and an amendment to MRID 136373 (MRID no. 414710-07). The studies provide supplemental information pertaining to aqueous photolysis, but cannot fulfill the data requirement because they were done at very low pH values which usually are not found in the environment. A new study is required.
4. In its Phase II submission, the registrant cited an MRID and an existing study never seen by EPA to support the photodegradation in air (161-3) data requirement. After further evaluation, the registrant decided to rely on a more recent study (MRID no. 414710-08) to satisfy this data requirement. This study will be reviewed in Phase V.
5. In its Phase III response the registrant submitted waiver requests for photodegradation in air (161-4) and laboratory volatility (163-2) data. The waiver request for laboratory volatility data cited vinclozolin's vapor pressure (3.4×10^{-6} mbar at 25°C , or 2.6×10^{-6} mm Hg) as justification for the data waiver. Because volatilization is a possible route of dissipation in the environment, EFGWB requires acceptable laboratory volatility data on all compounds whose vapor pressure exceeds 10^{-6} mm Hg. Therefore, laboratory volatility data for vinclozolin will be required. The data requirements for photodegradation in air (161-4) and field volatility (163-3) will be reserved pending the results of an acceptable laboratory volatility study.
6. Additional information regarding frozen storage stability and identification of degradation products is required. See DERs for details.
7. In its Phase II submission, the registrant cited an MRID and an existing study never seen by EPA to support the anaerobic soil metabolism data requirement (162-2). After further evaluation, the registrant decided to rely on a more recent study (MRID no. 414710-09) to satisfy this data requirement. This study will be reviewed in Phase V.
8. Anaerobic aquatic metabolism data are now required for chemicals with terrestrial food and non-food crop uses because of the potential of the compound to reach aquatic systems via runoff.
9. In its Phase II submission, the registrant cited an MRID and an existing study never seen by EPA to support the leaching/adsorption/desorption data requirement (163-1). In its Phase III correspondence, the registrant indicates that after further evaluation, it has decided to rely on a more recent study (MRID no. 414710-10) to satisfy this data requirement. In addition, the Phase III package contained a summary (MRID no. 92194-044) of an aged soil column leaching study and an earlier study (MRID nos. 414969-04 and 136381, respectively). EFGWB assumes that the registrant intends to meet the data requirement with all studies which were summarized in MRID no. 92194-044. The leaching/ads/esorption data will be reviewed in Phase V.

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10. The data requirement for dissipation studies for combination products and tank mixes (164-4) is not being imposed at this time.
11. Long-term terrestrial field dissipation data are reserved pending the results of acceptable terrestrial field dissipation studies.
12. The studies submitted do not satisfy the data requirement for accumulation in confined rotational crops (165-1). However, MRID no. 136385 contains supplemental information related to the data requirement for confined rotational crops (165-1) and MRID no. 94617 contains supplemental information pertaining to the data requirement for field accumulation in rotational crops (165-2). A third study (MRID no. 414969-05) was received as part of the Phase IV package and also was summarized in the summary for the confined rotational crop studies (MRID no. 92194-030). This third study, however, was not cited in the registrant's Phase III response as being submitted in support of any data requirement. According to the study title page it is intended to support the data requirement for accumulation in confined rotational crops (although the study is titled "Uptake of Vinclozolin Soil Residues by Fall and Annual Rotational Crops Under Field Conditions"). Since it is a new study, it will be reviewed in Phase V. See attached DERs for details.
13. One study submitted in support of the data requirement for accumulation in confined rotational crops (165-1) contained supplemental information related to accumulation in field rotational crops (165-1); refer to the DER for details. The registrant's Phase III response indicates that a new study will be submitted.
14. The study submitted partially satisfies the data requirement for accumulation of vinclozolin in bluegill sunfish. Additional data regarding identification of vinclozolin metabolites and frozen storage stability of vinclozolin and its metabolites in fish tissue are required. See DER for details.
15. Ground water monitoring studies are reserved pending review of acceptable environmental fate studies.
16. If projected aquatic residues, based on modeling scenarios, are of environmental concern, this study may be required.
17. In general, droplet spectrum and field spray drift information will be required if one or more of the following criteria are met:
 - (1) Human exposure - The chemical is classified in Toxicity Category I or II for human acute inhalation or dermal effects studies;
 - (2) Aquatic animal wildlife exposure - The chemical is used in close proximity to aquatic systems and five percent of the applied quantity yields a greater than ten percent mortality for aquatic animal species. This is based on the fact that about one to five percent of an applied pesticide can drift 100 yards (100 meters) in a ten knot (4.5 m/s) wind when applied about ten feet above the crop canopy. Terrestrial wild

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animal situations are based on human toxicity criteria given above; or

(3) Wild and cultivated plant exposure - The chemical is used in close proximity to sensitive plants, as noted in phytotoxicity testing, including endangered and threatened species, that may be found within 100 to 500 yards (100 to 500 meters) downwind.