

Date Out:

AUG 27 1997

Chemical Code: 081901

DP Barcode: D237337

ENVIRONMENTAL FATE AND EFFECTS DIVISION
Environmental Risk Branch III

To: Richard Dumas, PM #61
Special Review and Reregistration Division (7508W)

From: Daniel Rieder, Chief *Daniel Rieder 8/27/97*
Environment Risk Branch III
Environmental Fate & Effects Division (7507C)

Attached, please find the ERBIII review of...

Common Name:	Chlorothalonil	Trade name:	Bravo
Company Name:	ISK Biosciences Corporation		
ID #:	081901		
Purpose:	Review interim report for ground-water monitoring study and responded to registrants request to terminated the monitoring study. (THIS REPLACES DB BARCODE D235329; MRID 44254801)		

Type Product:	Action Code:	ERBIII #(s):	Review Time:
	614		7 days

STATUS OF STUDIES IN THIS PACKAGE:

Guideline #	MRID	Status ¹
166-1	442911,01	
replaces	442548,01	

**STATUS OF DATA REQUIREMENTS
ADDRESSED IN THIS PACKAGE:**

Guideline #	Status ²

¹Study Status Codes:²Data Requirement Status Codes:

A = Acceptable U = Upgradeable C = Ancillary I = Invalid.

S = Satisfied P = Partially satisfied N = Not satisfied R = Reserved W = Waived.

DP BARCODE: D237337

REREG CASE # 0097

CASE: 819269
SUBMISSION: S526757

DATA PACKAGE RECORD
BEAN SHEET

DATE: 08/18/97
Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: REREGISTRATION ACTION: 614 DATA WAIVER REQUEST
CHEMICALS: 081901 Chlorothalonil

100.00 %

ID#: 081901

COMPANY:

PRODUCT MANAGER: 52 KATHY MONK

703-305-6120

ROOM: CM2

1022D

PM TEAM REVIEWER: JILL BLOOM

703-308-8019

ROOM: CS1

2D6

RECEIVED DATE: 06/09/97 DUE OUT DATE: 08/18/97

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 237337 EXPEDITE: N DATE SENT: 07/15/97 DATE RET.: / /
CHEMICAL: 081901 Chlorothalonil
DP TYPE: 001

	CSF: N		LABEL: N	
ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE: 09/03/97	
DIV : EFED	07/16/97	/ /	NEGOT DATE: / /	
BRAN: EFGB	07/16/97	/ /	PROJ DATE: / /	
SECT: GTS	07/16/97	08/18/97		
REVR :	/ /	/ /		
CONTR:	/ /	/ /		

* * * DATA REVIEW INSTRUCTIONS * * *

To Jim Wolf: The attached chlorothalonil groundwater monitoring study status report (MRID #442911-01), dated May 29, 1997, has been submitted by ISK in support of its request to cease monitoring. Please review it in conjunction with the identification of what is different in this report compared to the previous status report. (ISK has yet to make these identifications.) Please provide your recommendations for continuing/discontinuing the study and the rationale for these recommendations. As appropriate, please provide your conclusions on the groundwater monitoring study data and how they should be incorporated into our reregistration decisions.
Thank you, Jill Bloom, 308-8019 Please disregard the "PM" and "sent from" fields above. I am in the Reregistration Branch 2 of SRRD now.

* * * DATA PACKAGE EVALUATION * * *

No evaluation is written for this data package

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

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
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2

STUDY REVIEW

AUG 27 1997

SUBJECT: Review of April 1997 Interim Report: Chlorothalonil Small-Scale Prospective Monitoring Study (Guideline No. 166-1)
PC Code 81901; DP Barcode D237337; MRID 442911-01 (replaces D235329; MRID 44254801)
Additional data for lysimeters and ground-water monitoring wells were provided by the registrant as requested by EFED/SRRD from 24 through 33 months after the final chlorothalonil application via FAXes dated 8/05/97 and 8/12/97

FROM: James K. Wolf, Ph.D., Soil Physicist
Environmental Risk Branch III (7507C) *James K Wolf*
8/18/97

THRU: Daniel Rieder, Branch Chief
Environmental Risk Branch III *Daniel Rieder* *8/27/97*
Environmental Fate and Effects Division (7507C)

TO: Jill Bloom
Reregistration Branch II
Special Review and Reregistration Division (7508W)

RECOMMENDATIONS:

1. The submitted interim report (through September 1996) for small-scale ground-water monitoring study being conducted in North Carolina as part of the data requirements for chlorothalonil is acceptable. EFED recommends that SRRD accept this interim report. It should be stated that this does not reflect an EFED acceptance (or rejection) of the study results or any interpretations included in the report.

A final decision concerning the study can not be made until the remaining monitoring data is submitted and reviewed with the final report. Because additional data still remain to be submitted and the registrant states that the data "have not been audited by Quality Assurance, and therefore, are subject to change" a final review cannot be made.
2. It is recommended that SRRD approve ISK's request to terminate the ground-water monitoring study. EFED makes this recommendation to allow the registrant to discontinue the study with some reservation. This is because it is not clear how much

chlorothalonil residues remain between the bottom of the lysimeters (9 feet) and the water table (~28 feet). The registrant continued to collect samples for analysis after September 1996. This data through June 1997 has been submitted and considered in this recommendation. It appears that the maximum concentration of SDS-46851 has already occurred, although due to multiple applications residues continue to leach. The study will not be long enough to thoroughly evaluate the decline of the residues in ground water. However, since the major degradate (SDS-46851) has been determined to be nontoxic, continuation of the study is not warranted.

CONCLUSIONS:

The small-scale prospective study being conducted in North Carolina on peanuts confirms that under vulnerable hydrologic conditions, ground water can be contaminated by chlorothalonil degradates. The chlorothalonil degradate SDS-46851 was found in ground water for more than 20 months, reaching a maximum concentration of 10.1 ug/L in this study. This concentration is similar to that of a study conducted in New York, where the SDS-46851 reached 12.6 ug/L. Limited detections of a second degradate, DS-47525, was also detected in NC in two ground water samples at concentration of 0.2 ug/L. Two additional degradates found in NY were not detected in the NC ground water: SDS-3701 and SDS-19221. Further a few sporadic low concentrations of the less mobile and persistent parent chlorothalonil were detected (trace to 0.3 ug/L) in the North Carolina study. It is anticipated that use areas with less vulnerable ground-water conditions would be less likely to be impacted by chlorothalonil residues. The occurrences and distribution of the bromide tracer in ground water was similar to that of SDS-46851. It appears that although the concentrations in the down gradient wells are increasing, the concentrations are less than the highest concentrations already seen.

BACKGROUND:

This April 1997 Interim Report updates field data collected and analytical data generated through September 1996 for a small-scale ground-water monitoring study being conducted in North Carolina as part of the data requirements (166-1) for chlorothalonil (DP Barcode D237337). Chlorothalonil was applied to peanuts in 8 applications at approximately 14-day intervals to peanuts. A bromide tracer was applied twice, with the first and last chlorothalonil treatments only. The report presents monitoring results at monthly sampling intervals covering the period through 24 months following the last application of chlorothalonil. Specifically, the analytical data is for soil, soil-pore water, and ground water for the period September 1995 to September 1996. Previous progress reports have also been submitted and reviewed by the Agency (USEPA, 1996; 1997). Additionally, with this submittal the registrant is requesting the Agency to allow the study to be discontinued and the study site be decommissioned.

The registrant proposed to discontinue sample collection at the ground-water study site in an earlier submittal (DP Barcode D229629; MRID 440915-00, 01). The supporting data submitted by the registrant at that time covered the study through April 1996. EFED recommended to

SRRD that the registrants request to discontinue the collection and analysis of additional soil samples in September 1996 and soil-pore water samples in December 1996 be approved, but recommended that ground-water monitoring (sampling and analysis) continue (USEPA, 1996). Five months (after April 1996) of additional data (through September 1996) are included in this current action (D237337; MRID 44291101).

EFED requested that data from October 1996 through June 1997 be made available to allow for a more thorough evaluation of the study results. The registrant made this data available through FAX submittals dated 8/05/97 and 8/12/97.

DISCUSSION:

Bromide concentrations in Figures 10 to 12 indicates that much of the bromide from the second application has leached below the 3, 6, and 9-foot lysimeters by December 1995. Maximum bromide concentrations in the suction lysimeters ranged from around 4 to about 8 mg/L (ppm), decreasing to less than 1 mg/L by November 1995. Figure 13 shows that once bromide was detected (3/95) in the shallow well of cluster 1 (up gradient wells; 3 wells per cluster) that the bromide concentration remained essentially constant or decreases slightly with time (9/96). The same figure shows that bromide concentrations in the medium depth up gradient monitoring well increased with time. Bromide was not reported in the deep up gradient monitoring well with a detection limit of 0.075 mg/L. Figures 14 and 15 suggest that the bromide concentrations in the two down gradient well clusters were first detected (3/95) and were still generally increasing as of September 1996 (last reporting period) for all three well depths. The lack of detections in the deep up gradient monitoring well suggest that the bromide is moving both vertically and horizontally in the direction of water flow. (Note: a single detection of bromide, 0.2 ppm, was reported for 3/97 sampling). The monitoring data for period 10/96 to 6/97 indicates that the bromide concentrations in the up gradient wells have more or less remained constant. The bromide concentrations in the down gradient wells for the period 10/96 to 6/97 generally continued to increase until (around) 9/96, concentrations tended to level-off after this sampling.

Figures 16, 17, and 18 show the concentration of chlorothalonil degradate SDS-46851 in the three suction lysimeter clusters (with 3, 6, and 9-foot depths) over time. From these figures it appears that the degradate SDS-46851 has leached below the sampling depths (9 feet) of the suction lysimeters. Also, no additional detections of SDS-46851 occurred in any of the lysimeter samples collected for the period 10/96 through 6/97.

Figures 19, 20, and 21 depict the SDS-46851 concentrations in the different monitoring wells (by depth and cluster) over time. The up gradient monitoring wells for the degradate SDS-46851 were similar to that of bromide in that residues were detected in both the shallow and medium up gradient monitoring well, but not the deep well. The pattern of high/low concentrations of SDS-46851 between sampling dates generally corresponded with the bromide concentrations. The concentrations in the shallow well remained constant or decline with time, whereas in the medium depth well concentration increased with time. Concentrations of SDS-46851 ranged from no

detection to 10.1 ug/L, but was typically less than 6 ug/L. Concentrations of SDS-46851 generally increased (still increasing at 9/96) with time for the shallow, medium, and deep down gradient monitoring wells. Concentrations ranged from less than detection limit to 2.2 ug/L.

Chlorothalonil degradate SDS-46851, for the period 10/96 to 6/96 generally tended to increase (but never reaching the maximum earlier concentration of 10.1 ug/L), but decrease at the final sampling date (Figures A, B, C). For the same period, the two up gradient wells act somewhat independent from each other. The shallow well concentrations tend to fluctuate (1.1 to 7.5 ug/L) with time, and probably reflect different "peaks" associate with the multiple applications. The medium depth well shows limited fluctuations which do not correspond to the shallow well, and range between 0.3 and 1.6 ug/L. It does appear that the maximum concentrations (peaks) have occurred, and that while SDS-46581 concentrations may increase down gradient, it is unlikely that concentrations will exceed maximum values already observed. This is based in part on the fact that while concentrations of SDS-46581 are still increasing slightly in the monitoring wells, concentrations occurring in the suction lysimeters tended to be within the same order of magnitude or less than those seen in ground water.

In the previous submittal a few detections of chlorothalonil parent (SDS-2787) (<0.1 to 0.3 ug/L) and two detections of degradate SDS-47525 (trace and 0.2 ug/L) occurred in ground water.

Comparing the lysimeter graphs with the monitoring well graphs one can note that chlorothalonil residues (SDS-46851) were being detected in ground water at the same time residues were being found in the suction lysimeters. Therefore the residues in ground water likely from earlier chlorothalonil applications (earlier than those reflected in the lysimeters). In general, the concentrations of SDS-46851 in the monitoring wells are remaining somewhat constant or may still be increasing. Thus, there is evidence that although the residues have leached below 9 feet (found in lysimeters from later applications) they may not yet reached ground water. Based on trends that have been occurring at this study site, it does appear that the concentrations of SDS-46851 will not exceed the maximum values (10.1 ug/L) already observed. When detectable concentrations of SDS-46581 occurred in the suction lysimeters, values ranged between less than detection limit 0.1 ug/L to about 7.6 ug/L, but were generally less than 2 ug/L. No SDS-46851 residues were reported in the lysimeters at any cluster or depth during the 1996 reporting period and for some of 1995.

A final decision concerning the study can not be made until the remaining monitoring data is submitted and reviewed with the final report. The registrant states that the data "have not been audited by Quality Assurance, and therefore, are subject to change". Should the final report not contain significant deviations from the results presented to date, several generalizations can be made. The generalizations are divided into three areas: what we know, what we don't know, and other factors.

What we know:

- Most of the bromide (assuming concentration is a reflection of mass) has been leached below the deep (9 foot) suction lysimeters.
- Bromide was detected in deepest up gradient monitoring well only once.
- Bromide concentrations in all the down gradient wells and the medium depth up gradient monitoring wells are increasing with time.
- No degradate SDS-46851 was found above the deep (9-foot) suction lysimeters in any of the suction lysimeters after September 1995.
- Maximum concentrations of SDS-46851 in the suction lysimeters did not exceed those found in the ground water monitoring wells.

What we do not know:

- How much bromide and SDS-46851 may remain between the bottom of lysimeters and the water table.
- The maximum potential concentrations of bromide and SDS-46851 in the down gradient wells.
- Impact of multiple year applications of chlorothalonil.
- The relationship between the measured concentrations and mass of pesticide leached.

Other factors:

- Parent chlorothalonil is not very mobile or persistent and not likely to leach, as shown by a few relatively low concentration detections. SDS-46851 is mobile and persistent and likely to leach under vulnerable conditions
- Concentrations of SDS-46851 seen in this study are similar to other studies (Long Island data).
- The toxicity of SDS-46851 appears to be very low.
- The degradate SDS-47525 shows a small potential to contaminate ground water.

CITATIONS:

USEPA. 1996. Review of interim report for small-scale prospective ground-water monitoring study for chlorothalonil (166-1). DP Barcode D229629. Submission S511182. Interim report submitted by ISK in support of reregistration of chlorothalonil. PC Code: 081901; MRID 440915-00, 01

USEPA. 1997. Review of interim report for small-scale prospective ground-water monitoring study for chlorothalonil (166-1). DP Barcode D224906. Submission S503334. Interim report submitted by ISK in support of reregistration of chlorothalonil. PC Code: 081901; MRID 439594-01, 02.

CHLOROTHALONIL

Page _____ is not included in this copy.

Pages 9 through 23 are not included in this copy.

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