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MEMORANDUM

FROM: James K. Wolf
GWTS/EFGWB

TO: Sharlene Matten
SACS/EFED

THRU: Elizabeth Behl, Section Head
GWTS/EFGWB

SUBJECT: Response to registrants rebuttal of RED chapter for Chlorothalonil

DATE: July 11, 1996

EPA Comment on ISK Biotech Response #32.

The registrant is correct noting that the detections in Massachusetts, Florida, Maine, and California refer to the parent rather than degradates. Confusion occurred due an earlier EFGWB review, which only included the New York data, which indicated that only chlorothalonil degradates had been detected in ground water. This error was not noted during the review process, and should be corrected in the RED.

The information cited by the registrant for California, Florida, Maine, and Massachusetts was previously evaluated in a prior EFGWB review (D174771; 1/14/93), which is given below in Section 1. This information will be included in the RED.

1. Summary of Monitoring Data on Chlorothalonil Residues in Ground Water:

Massachusetts. Parent chlorothalonil residues were detected (0.22 µg/L, 0.38µg/L) in two shallow ground-water wells by the Cap Cod Golf Course Monitoring Project. The detection limit was reported as 0.015 µg/L. The authors postulate that the detection may be due to contamination resulting from well installation.

New York. Metabolites (DS-3701, DS-19221, DS-46851, DS-47524, and DS-47525) of chlorothalonil (DS-2787) were detected in 16.4 percent (11 of 67 samples) of samples in Suffolk County, New York. Degradate concentrations in the New York study ranged from 1.1 to 12.6 µg/L for individual breakdown products. The highest combined concentration of chlorothalonil degradation products was 16.3 µg/L. Contaminants were primarily found in shallow private wells, but also were detected in a 97-foot deep public water supply well. The detection limit was not reported.

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An earlier, EPA review (USEPA, 1984) appears to contain a more complete assessment of the data later summarized and reported by Harris and Andreoli (1988), and described above. This review indicates that 24 wells were sampled in Suffolk County, Long Island, New York from September 14, 1981 to October 22, 1981. From 23 of the 24 wells, five separate analyses were conducted for the analytes DS-3701, DS-19221, DS-46851, DS-47524, and DS-47525. Parent chlorothalonil was also analyzed for in all 24 wells. The parent and degradate DS-47524 were not detected in any of the samples. Degradates were identified in 8 of the 24 wells, and in 11 of 139 (67 + 72) samples. The detections, by degradate, were as follows: DS-3701 (3.6 µg/L), DS-19221 (2.8 µg/L), DS-46851 (5.9, 2.0, 7.9, 12.6, 2.0, 3.9, and 8.5 µg/L), and DS-47525 (2.0, 2.0, and 5.0 µg/L). The reported quantification limit was 2.0 µg/L.

Other States. The Pesticide in Ground Water Database (USEPA, 1992) also reported detections of chlorothalonil residues in ground water in 1 of 25 wells in Florida (0.14 µg/L), 2 of 19 wells in Massachusetts (0.22 - 0.38 µg/L), Maine (trace) and 1 of 614 wells in California (0.8 to 1.1 µg/L). It was not stated whether these detections were parent or chlorothalonil metabolites.

2. The following other details will be added to the RED.

a. The chlorothalonil detection in California was probably due to faulty well construction. This does suggest that transport via preferential flow mechanisms may result in ground-water contamination from chlorothalonil use.

b. Although most of the states did not clearly indicated whether the detections were parent or degradate, it is most likely is the parent.

c. The NY study had a Limit of Quantification (LOQ) of 2.0 µg/L. A lower LOQ would most likely resulted in a greater number of detections for all of the degradates and possibly the parent.

3. EPA's NPS Study

The registrant suggests that the RED should note that National Survey of Pesticides in Drinking Water Wells (NPS) (1990) did not detect parent chlorothalonil in any well water samples with a minimum reporting limit for chlorothalonil of 0.060 µg/L. The lack of detections in this study is not surprising because of the limited number of wells sampled in the NPS which were likely to have been located in an area where chlorothalonil is used. The inclusion of chlorothalonil degradates may have increased the probability of detections.

4. Additional Registrant Studies

Since the review of 1993, the registrant has initiated a chlorothalonil ground-water monitoring study in North Carolina on peanuts. A number of detections of chlorothalonil degradates and parent have been already noted in this study (MRID#439594-01). Thus significant detections of chlorothalonil residues (degradates) have been reported in ground water where chlorothalonil is used on potatoes and peanuts. Both peanuts and potatoes represent major use sites for chlorothalonil.

5. Other Studies

Ernst et al. (1991) make reference to contaminated ground water through agricultural use of chlorothalonil with concentrations as high as 272 µg/L (source Krawchuk et al. 1987).

REFERENCE

Ernst, W., K. Doe, P. Jonah, J. Young, G. Julien, and P. Hennigar. 1991. The toxicity of chlorothalonil to aquatic fauna and the impact of its operational use on a pond ecosystem. Arch. Environ. Contam. Toxicol. 21:1-9

Krawchuk, B.P., G.R. Webster, G.R. Barrie. 1987. Movement of pesticides to ground water in an irrigated soil. Water Pollut. Res. J. Canada 22:129-145

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