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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC
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MEMORANDUM

SUBJECT: Response to the February 12, 1998 EPA Data Call-In Review for methidathion on Drinking Water Exposure and Risk Assessments
PC Code: 100301; CAS# 950-37-8, MRID#44518301, DP BARCODE: D245016

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DATE: May 19, 1998

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For the reasons identified below, we would like to have all the new studies submitted and reviewed, before we decide whether to repeat the effort for new drinking water assessment. We see no benefit in generating several interim assessments before the full data set has been submitted and reviewed. To facilitate the review process of drinking water assessment, the registrant is encouraged to run the models with the new inputs, once all the pending Environmental Fate studies are finished.

1. The tier 1 and tier 2 drinking water assessment reports of methidathion were based on the results of acceptable Environmental Fate studies, the modeling inputs guidance, and the professional best judgement for input selections.

2. Among the input parameters in question, some of them are not sensitive enough to affect the EEC results based on Novartis' suggestions.

   (1) Water solubility - The registrant has suggested to use the value of 220 mg/L as the input value for water solubility in stead of 250 mg/L. Since all estimated exposure values are less than 1 mg/L, which is significantly less than the water solubility, there will be no difference in the exposure values for either water solubility values, because they are only used as upper bounds for EECs.

   (2) Vapor pressure - The registrant has suggested to use the value of 1.87×10^{-6} mm Hg as the input value for vapor pressure in stead of 2.5×10^{-6} mm Hg. The volatilization process considered in EXAMS is computed based on Henry's constant, which is the ratio between vapor pressure and water solubility. When the magnitude of Henry's constant is in the range of 10^{-9} atm-m^3/mole as it is for methidathion, the effect of volatilization is almost nil.

   (3) Hydrolysis half-life - The registrant has mentioned a new hydrolysis study is being finalized. We will consider the new results once it have been reviewed and accepted. The average hydrolysis half-life at pH 7 could be used as input in GENEEC. For EXAMS, the hydrolysis constants (Kah, Knh, and Kbh) need to be calculated based on the half-life values at three different pH levels.

   (4) Foliar dissipation half-life - The registrant has suggested to use an average value of 2.8 days based on two on-going studies. We will consider the new results once the studies have been reviewed and accepted.

   (5) Foliar washoff coefficient - The registrant has suggested to use a default value of 0.1 as mentioned in the user's manual. It is the division policy for all chemicals to use a conservative default value of 0.5 unless there are foliar washoff studies to justify the input value.

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(6) Anaerobic soil metabolism half-life - The registrant has suggested to use a value of 10 days. This parameter is not used in GENEEC, SCI-GROW or PRZM/EXAMS when considering water assessments. As stated in page 6 of the tier 2 water assessment memorandum (Lin, 1998), the 10 days anaerobic soil metabolism half-life was not used in modeling. The value was used to estimate the half-life of the anaerobic aquatic metabolism half-life, which the registrant has concurred.

(7) Aerobic aquatic metabolism half-life - The registrant has suggested to use a value of 6 days for this parameter. According to the input guidance, the idea case is to use the laboratory aquatic aerobic metabolism half-life. If unavailable, we will use twice of the soil aerobic metabolism half-life due to the uncertainty of no laboratory results of aerobic aquatic metabolism study.

(8) k/K_{oc} - The registrant has identified the difference between K_{oc} and K_{om}. We will consider this discrepancy along with all others mentioned above, when additional studies are reviewed and accepted.

Reference - Lin, J. C. 1998. "Tier 2 Refined Modeling of Surface Water for Methidathion with PRZM/EXAMS." Environmental Risk Branch III, Environmental Fate and Effects Division, Office of Pesticide Programs, U. S. Environmental Protection Agency, Washington, DC.