PP#3F4182

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MEMORANDUM

SUBJECT: PP#3F4182. Fenoxaprop-ethyl on Barley. Calculation of Drinking Water Level of Concern.
Chemical# 128701 DP Barcode D244856 Caswell# 431C

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In the process of preparing the Federal register notice for establishing tolerances for residues of fenoxaprop-ethyl and its metabolites on barley commodities, we have been requested to calculate a drinking water level of concern (DWLOC) with respect to cancer risk. In our 2/3/98 review and risk assessment by S. Knizner for this use on barley, we concluded that "Because all GENEEC estimates for fenoxaprop-ethyl and fenoxaprop-acid were less than 1 ppb, potential residues in drinking water are not greater than HED's level of concern." However, we did not calculate the DWLOC using the 11/20/97 "Standard Operating Procedure (SOP) for Drinking Water Exposure and Risk Assessments". That calculation is now presented below.

As stated in the SOP, if cancer risk is quantified using a q* approach, the allowable chronic water exposure is calculated using the following equation:

chronic H_2O exposure (mg/kg/day) = (Negligible risk/q*) - (chronic food + residential exposure)

In this case the potency factor being used is 9.1×10^{-2} (mg/kg/day)$^{-1}$ (Q1* obtained by use of linear low dose extrapolation method). Negligible risk is 1×10^{-6}. Chronic food exposure for the U.S. population is 0.000010 mg/kg/day (ARC). There is no chronic residential exposure associated with uses of fenoxaprop. Therefore, the chronic water exposure is 1.0×10^{-6} mg/kg/day.

$(1 \times 10^{-6}/9.1 \times 10^{-2}$ (mg/kg/day)$^{-1}) - (0.000010$ mg/kg/day) = 1.0×10^{-6} mg/kg/day

The DWLOC is then calculated using the following equation

DWLOC (ug/L) = [chronic H_2O exposure (mg/kg/day) x body wt (kg)]/[consumption (L/day) x 10^{-3}mg/ug]

For the U.S. population the body weight is assumed to be 70 kg and water consumption is 2 L/day. This results in the DWLOC being 0.035 ppb = 35 ppt

$[(1.0 \times 10^{-6}$ mg/kg/day) x 70 kg]/[(2 L/day) x (10^{-3}mg/ug)] = 0.035 ug/L = 0.035 ppb

The 56-day estimated environmental concentrations provided by EFED using the GENEEC model were 0.56 ppt and 87 ppt for fenoxaprop-ethyl and fenoxaprop-acid, respectively (D. Spatz, 10/3/97). According to the 11/20/97 SOP, the 56-day concentrations from GENEEC can be divided by 3 prior to comparison with the chronic and cancer DWLOC's. Therefore, dividing the combined levels of the parent and acid metabolite by 3, one obtains about 29 ppt, which is less than the cancer DWLOC of 35 ppt. Therefore, HED concludes that there is not a greater than negligible cancer risk from chronic exposures to fenoxaprop-ethyl in drinking water and food.

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