TIER II WILDLIFE VALUE FOR ETHYLENE GLYCOL

The ethylene glycol wildlife value for waters within the Great Lakes Basin is 73,000 μg/L.

Calculations:

BAF predicted based on Log K_{ow}

Log K_{ow} = -1.37 (CLOGP program), K_{ow} = 0.04266

Trophic level 3 FCM = 1.000; trophic level 4 FCM = 1.000

f_{fd} = 1/(1+(0.00000024 kg/L)(K_{ow})) = 1.0

Baseline BAF_{T3} = (FCM)(K_{ow}) = (1.0)(.04266) = 0.04266

Baseline BAF_{T4} = (1.0)(0.04266) = 0.04266

Human health BAF_{T3} = [(0.04266)(0.0182)+1](1.0) = 1.0

Human health BAF_{T4} = [(0.04266)(0.0310)+1](1.0) = 1.0

Mammalian Value (mg/L)

Test Dose: 200 mg/kg/d (from DePass et al. 1986)

Uncertainty factor = 10 (interspecies extrapolation)

WV (Mink) = ((200)(0.8)(1/10))/(0.081+(0.159 x 1.0)+(0.0177 x 0)) = 66.54

WV (Otter) = ((200)(7.4)(1/10))/(0.6+(0.976 x 1.0)+((0.244 x 1.0)) = 81.15

WV (mammals) = 73.49

Wildlife Value

WV = 73,000 μg/L (mammalian wildlife value)

References:

1. DePass, L.R., R.H. Garman, M.D. Woodside, W.E. Giddens, R.R. Maronpot, and C.S. Weil 1986. Chronic toxicity and oncogenicity studies of ethylene glycol in rats and mice. Fundamental and Applied Toxicology 7: 547-565.

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