TIER II WILDLIFE VALUE FOR PROPYLENE GLYCOL

The propylene glycol wildlife value for waters within the Great Lakes Basin is 900,000 μg/L.

Calculations:

BAF predicted based on Log K_{ow}
Log K_{ow} = -1.060 (CLOGP program), K_{ow} = 0.0871
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)(.0871) = 0.0871

Baseline BAF_{T4} = (1.0)(0.0871) = 0.0871

Human health BAF_{T3} = [(0.0871)(0.0182)+1](1.0) = 1.002

Human health BAF_{T4} = [(0.0871)(0.0310)+1](1.0) = 1.002

Mammalian Value (mg/L)

Test Dose: 2500 mg/kg/d (from Gaunt and Carpanini 1972)

Uncertainty factor = 10 (interspecies extrapolation)

WV (Mink) = ((2500)(0.8)(1/10))/(0.081+(0.159 x 1.0)+(0.0177 x 0)) = 830.2

WV (Otter) = ((2500)(7.4)(1/10))/(0.6+(0.976 x 1.0)+((0.244 x 1.0)) = 1012

WV (mammals) = 916.7

Wildlife Value

WV = 900,000 μg/L (mammalian wildlife value)

References:

1. Gaunt, I.F., and F.M.B. Carpanini 1972. Long-term toxicity of propylene glycol in rats. Fd Cosmet. Toxciol. 10: 151-162.

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