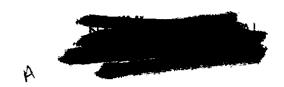COMPARISON OF PROPOSED HHBAFs FOR THE GLI

by

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> Predicted BAF based on Log P and measured BCF:

BCF	% L	Norm BCF (1.0% L)	Reference
663	4.8	138.1	Barrows et al. 1980

Geometric mean normalized BCF = 138.1

For 5.0% lipids at trophic level 4 the predicted HHBAF that is calculated from the geometric mean normalized BCF is (138.1)(5.0)(1.4) = 967.

Note: This BCF was based on uptake of radioactivity with no verification of the parent chemical. Thus this BCF and the resulting predicted HHBAF might be too high.

> No measured BAF was found.

CADMIUM   [CAS#: 7440-43-9]

Based on dry-weight measurements on adult brook trout, Benoit et al. (1976) obtained BCFs of 15 for muscle, 300 to 600 for whole body, and 19,000 for kidney. Using a conversion factor of 0.2 (Stephan et al. 1985), the wet-weight BCF for muscle is estimated to be 3. Sangalang and Freeman (1979) obtained a BCF of 17 for muscle of brook trout. Calamari et al. (1982) obtained a BCF of 2.3 for muscle of rainbow trout. Data presented by Murphy et al. (1978) can be used to calculate BAFs of 0.3 and 1.6 based on increases in the concentrations of cadmium in water and in muscle of bluegills and bass in a contaminated pond. The geometric mean of 0.3 and 1.6 is 0.69, which will be used as the predicted HHBAF.

CARBON TETRACHLORIDE   [CAS#: 56-23-5]

> Predicted BAF based on Log P:
    The following values were found for Log P:
                2.83   MedChem Star
                2.875   MedChem Calc
                2.64   Isnard and Lambert 1989
    A value of 2.8 was selected as a "typical Log P", from which the following were obtained:
            Predicted BCF (at 7.6% lipids) = 64.9
            Normalized BCF (at 1.0% lipids) = 8.54
            Food Chain Multiplier = 1.0
    For 5.0% lipids at trophic level 4 the predicted HHBAF that

is calculated from the "typical Log P" is $(8.54)(5.0)(1.0) =$ 43.

> Predicted BAF based on Log P and measured BCF:

BCF	% L	Norm BCF (1.0% L)	Reference
30	4.8	6.25	Barrows et al. 1980

Geometric mean normalized BCF = 6.25

For 5.0% lipids at trophic level 4 the predicted HHBAF that is calculated from the geometric mean normalized BCF is $(6.25)(5.0)(1.0) = 31$.

Note: This BCF was based on uptake of radioactivity with no verification of the parent chemical. Thus this BCF and the resulting predicted HHBAF might be too high.

> No measured BAF was found.

CHLORDANE   [CAS#: see below]

There are several isomers of chlordane and so the following were all considered to be of interest:
CAS#:   57-74-9   Chlordane, mixture of cis and trans
CAS#:   5103-71-9   alpha-chlordane; cis-chlordane
CAS#:   5103-74-2   beta-chlordane; trans-chlordane
CAS#:   5566-34-7   gamma-chlordane
CAS#:   12789-03-6   Chlordane, technical
All of these are expected to have similar values for Log P, BCF, and BAF.

> Predicted BAF based on Log P:
The following values were found for Log P:
          5.54   MedChem Calc
          6.0   Isnard and Lambert 1989
A value of 5.77 was selected as a "typical Log P", from which the following were obtained:
          Predicted BCF (at 7.6% lipids) = 14,398
          Normalized BCF (at 1.0% lipids) = 1,894
          Food Chain Multiplier = 33
For 5.0% lipids at trophic level 4 the predicted HHBAF that is calculated from the "typical Log P" is $(1,894)(5.0)(33) =$ 312,510.

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