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COMPARISON OF PROPOSED HHBAFs FOR THE GLI

by

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7.19 Miller et al. 1985
7.19 Isnard and Lambert 1989

A value of 6.84 was selected as a "typical Log P", from which the following were obtained:

Predicted BCF (at 7.6% lipids) = 100,000

Normalized BCF (at 1.0% lipids) = 13,158

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 $(13,158)(5.0)(1.0) = 65,790$.

Note: Field data (Burkhard, unpublished) resulted in predicted BAFs from 17 to 228 for four PAHs with three and four rings for fish with 5.0 % lipids. It seems unlikely that PAHs with five rings will have BAFs greater than 1000.

> No measured BCF or BAF was found.

DIBUTYL PHTHALATE [CAS#: 84-74-2]

> Predicted BAF based on Log P:

The following values were found for Log P:

4.72 MedChem Star

4.689 MedChem Calc

5.15 Veith et al. 1979a

A value of 4.8 was selected as a "typical Log P", from which the following were obtained:

Predicted BCF (at 7.6% lipids) = 2,466

Normalized BCF (at 1.0% lipids) = 324.5

Food Chain Multiplier = 1.6

For 5.0% lipids at trophic level 4 the predicted HHBAF that is calculated from the "typical Log P" is $(324.5)(5.0)(1.6) = 2,596$.

Note: Metabolism is likely to reduce the BCF and FCM enough to cause the actual BAF to be less than 1000.

> No measured BCF with a measured value of percent lipids was found.

> No measured BAF was found.

1,2-DICHLOROBENZENE [CAS#: 95-50-1]

> Predicted BAF based on Log P:

The following values were found for Log P:

3.38	MedChem Star
3.568	MedChem Calc
3.34	Hammers et al. 1982
3.38	Miller et al. 1985
3.40	Bobra et al. 1985
3.39	Isnard and Lambert 1989
3.433	de Bruijn et al. 1989

Values ranging from 3.34 to 3.65 were cited by de Bruijn et al. (1989). A value of 3.4 was selected as a "typical Log P", from which the following were obtained:

Predicted BCF (at 7.6% lipids) = 193.2
Normalized BCF (at 1.0% lipids) = 25.4
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 $(25.4)(5.0)(1.0) = 127$.

> Predicted BAF based on Log P and measured BCF:

BCF	% L	Norm BCF (1.0% L)	Reference
89	4.8	18.5	Barrows et al. 1980
389	8.45	46.0	Oliver and Niimi 1983

Geometric mean normalized BCF = 29.2

For 5.0% lipids at trophic level 4 the predicted HHBAF that is calculated from the geometric mean normalized BCF is $(29.2)(5.0)(1.0) = 146$.

Note: The BCF reported by Barrows et al. (1980) was based on uptake of radioactivity with no verification of the parent chemical and therefore might be too high.

> Data presented by Oliver and Nicol (1982) for lake trout in Lake Ontario and Lake Huron indicate that the normalized BAF for 1,2-dichlorobenzene is greater than 21; the predicted HHBAF for 5.0% lipids would be greater than 105.

1,3-DICHLOROBENZENE [CAS#: 541-73-1]

> Predicted BAF based on Log P: -

The following values were found for Log P:

3.60	MedChem Star
3.568	MedChem Calc
3.46	Hammers et al. 1982