Rule 57 Aquatic Values Data Sheet

Chemical name: Cumene
CAS #: 98-82-8

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Approved by: [signature]
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Literature search date: 7/14/08

FAV:	500 ug/L	*(Tier 2)*
AMV:	250 ug/L	*(Tier 2)*
FCV:	28 ug/L	*(Tier 2)*

ACUTE DATA

Species	Test type (EC or LC50)	Duration (hours)	Test conditions (FT,M, etc.)	Hardness mg/L	Chemical	LC50/EC50 ug/L	SMAV ug/L	GMAV ug/L	Rank	Refere
Water flea (*Daphnia magna*)	EC50	48	FT,M	170		4,000	4,000	4,000	1	1
Rainbow trout (*Oncorhynchus mykiss*)	LC50	96	FT,M	30-36		4,800	4,800	4,800	2	2
Fathead minnow (*Pimephales promelas*)	LC50	96	FT,M	44.3		6,320	6,320	6,320	3	3

CHRONIC DATA

Species	Test type (ELS, etc.)	Duration (days)	Study Conditions (FT,M etc.)	Hardness mg/L	Chemical	MATC ug/L	SMCV ug/L	GMCV ug/L	Rank	Reference

No useful chronic studies available.

References:

1. Springborn Laboratories, Inc. 1990. Cumene (Isopropyl Benzene): Acute Toxicity to Daphnids (*Daphnia magna*) During a 48 Hour Flow-Through Exposure. SLI Report # 89-11-3153. Submitted to Chemical Manufacturer's Association.

2. Springborn Laboratories, Inc. 1990. Cumene (Isopropyl Benzene): Acute Toxicity to Rainbow Trout (*Oncorhynchus mykiss*) Under Flow-Through Conditions. SLI Report # 90-1-3200. Submitted to Chemical Manufacturer's Association.

3. Geiger, D.L. et al. 1986. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*). Volume III. Center for Environmenta Studies, University of Wisconsin-Superior.

Studies of suitable duration but not used:

Bobra, A.M., W.Y. Shiu, and D. Mackay. 1983. A predictive correlation for the acute toxicity of hydrocarbons and chlorinated hydrocarbons to the water flea (*Daphnia magna*). Chemosphere 12:1121-1129. (animals too old)

Galassi, S., M. Mingazzine, L. Vigano, D. Cesareo, and M.L. Josato. 1988. Approaches to modeling toxic responses of aquatic organisms to aromatic hydrocarbons. Ecotox. Environ. Safety 16:158-169. (insufficent description of test methods)

MacLean, M.M. and K.G. Doe. 1989. The comparative toxicity of crude and refined oils to *Daphnia magna* and Artemia. Environment Canada, EE-111. Dartmouth, Nova Scotia: 64 p. (mixture data, insufficient description of test methods for chemical-specific information)

Min. data req. met	Acute Factor
2	13
3	8
4	7
5	6.1
6	5.2
7	4.3

Rule 57 Aquatic Values Work Sheet

Chemical Name: Cumene (Isopropylbenzene)
C.A.S. #: 98-82-8

AQUATIC MAXIMUM VALUE CALCULATIONS

A. Minimum 8 species requirement is **not** met. Minimum requirements met = 3 (i, iii, iv)
Minimum requirements missing for Tier I = 5 (ii, v, vi, vii, viii)
Acute factor = 8

1. Toxicity **is not** dependent on a water characteristic

   a. FAV calculation $FAV = \frac{4{,}000\ ug/L}{8} = 500\ ug/L$

2. Toxicity **is** dependent on a water characteristic

   a. Slope = (Table ___)

   b. FAV equation:

3. Go to C.

B. Minimum 8 species requirement **is** met (Tier I)

1. Toxicity **is not** dependent on a water characteristic

   a. FAV calculation: Att. ___

2. Toxicity **is** dependent on a water characteristic

   a. Slope = (Table ___)

   b. Ranked genus mean acute intercepts: Table

   c. Final acute intercept = (Att. ___)

   ln of final acute intercept =

   d. FAV equation =

C. Aquatic Maximum Value (AMV) calculation:

$$AMV = \frac{4{,}000\ ug/L}{8} \div 2 = 250\ ug/L$$

FINAL CHRONIC VALUE CALCULATIONS

A. Minimum 8 species requirement is **not** met (Tier II). Minimum requirements met = ___
Minimum requirements missing for Tier I =

1. Acute to chronic ratio

   a. Number ACRs meeting minimum data requirements = ____ (Table ___)

   b. Acute to chronic ratio =

2. Toxicity **is not** dependent on a water characteristic

   FCV = $\frac{4{,}000 \text{ ug/L}}{8} \div 18 = 27.8 \text{ ug/L} = 28 \text{ ug/L}$

3. Toxicity **is** dependent on a water characteristic

   a. Slope = (Table __)

   b. Aquatic chronic intercept = (Table __)

   ln of aquatic chronic intercept =

   c. FCV equation =

B. Minimum 8 species requirement **is** met (Tier I)

1. Toxicity **is not** dependent on a water characteristic

   a. FCV = ___ (Att. ___)

2. Toxicity **is** dependent on a water characteristic

   a. Slope = (Table __)

   b. Ranked genus mean chronic intercepts: Table ___

   c. Final chronic intercept = ____ (Att. ___); ln of final chronic intercept =

   d. FCV equation =