VALUE(S) ADDED 7-24-85

FACT SHEET REVISED _____

VALUE(S) REMOVED _____

AMBIENT SURFACE WATER QUALITY STANDARDS DOCUMENTATION

CHEMICAL: Dodecylguanidine salts

CAS NO.(s): 13590-97-1; 2439-10-3

BASIS (Human/Aquatic): Human

WATER CLASSIFICATION: AA; AA-s; A; A-s

STANDARD: 50 ug/l Note B

REMARKS: Applies to the sum of dodecylguanidine salts, as dodecylguanidine.

SUMMARY INFORMATION:

Dodecylguanidine hydrochloride (DGH), an alkylated guanidine microbicide, is poorly characterized toxicologically. The acetate analog (DGA=dodecylguanidine acetate) is a fungicide which acts as a cationic surfactant to control fruit tree disease.[1] Although DGA alone is not mutagenic to E. coli K12, it forms a mutagenic N-nitroso derivative in the presence of sodium nitrite at low pH.[2] The compound has not been adequately tested to determine its oncogenic potential. The World Health Organization[3] (WHO) has established no-effect levels for DGA in the rat (10 mg/kg) and dog (1.25 mg/kg) based on the results of feeding studies[1] in which levels higher than these produced moderate retardation of growth in rats and histological changes in the thyroid of dogs; no specific reproductive problems were noted. However, investigators in the U.S.S.R.[4] have reported that doses of 1.33 mg DGA/kg caused functional changes in the cerebral cortex and hemodynamic changes in the heart, liver, kidney, brain and lung of guinea pigs. The significance of this report is not known. The WHO[3] has estimated 0.01 mg/kg as an acceptable daily intake for DGA.

STANDARD DERIVATION:

Based on the no-effect level in the dog and an uncertainty factor of 100, an ADI of 0.01 mg/kg can be calculated for DGA. Using a body weight of 70 kg for man and assuming that consumption of 2 liters of water/day provides 20% of the allowed daily intake of DGA, the guideline for DGA would be 50 ug/l (as dodecylguanidine). In the absence of specific toxicologic data, this guideline would also apply for DGH. The level of 50 ug/l (as dodecylguanidine) is recommended as the ambient water quality standard for dodecylguanidine salts.

REFERENCES:

(1) Levinskas, G.J. et al. 1961. Toxicol. Appl. Pharmacol. 3, 127-142.

(2) Egert, G. and H. Greim. 1976. Mutation Res. 37, 179-186.

(3) WHO Pesticide Residue Series. 1975. No. 4. pp. 265-284.

(4) Tovstenko, A.I. 1973. Vop. Pitan. 5: 72-74. (Abstract)

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