

VALUE(S) ADDED 5-10-84  
FACT SHEET REVISED \_\_\_\_\_  
VALUE(S) REMOVED \_\_\_\_\_

Date: October 10, 1984

Surface Water Quality  
Standard Documentation

Chemical: 2,2-Dibromo-3-nitrilo-propionamide and dibromoacetonitrile

C.A.S. No.(s): 1022-01-2 and 3252-43-5

Basis (Human/Aquatic): Aquatic

Standard by Water Classification:

	<u>ug/l</u>	<u>Notes</u>
Classes AA,AA-s;A;A-s;B;C	20	J
Class D	50	K
Classes SA;SB;SC;I		
Class SD		

Remarks:

Summary of Information

1. DBNPA is the active ingredient in a number of water treatment compounds and DBAN is its most toxic degradation product. A number of water treatment chemical companies have submitted aquatic toxicity data for products containing DBNPA. Data is maintained in DEC files. The following summarizes data for a number of products:
  - a. BETZ Slimicide 508 (20% DBNPA): 48 hr. LC<sub>50</sub> for Daphnia was 2.3 mg/l; rainbow trout, 5.6 mg/l; and bluegill, 10.1 mg/l.
  - b. Hercules MB 127: LC<sub>50</sub> for rainbow trout bluegill and Daphnia ranged from 0.9-1.8 mg/l.
  - c. Drew Biosperse 240 (5% DBNPA): 96hr LC<sub>50</sub> for bluegill and rainbow trout were 26 and 20 mg/l, respectively.  
-also provided 48hr. EC<sub>50</sub> as DENPA for 3 marine species:  
eastern oyster embryo 0.56 - 1.0 mg/l; fiddler crab 15 mg/l;  
and pink shrimp, 3.2 mg/l.
2. Mayes et al. 1983. The acute toxicity of Dibromo nitrilo propionamide (DBNPA) and selected degradation products to the fathead minnow (Pimephales promelas Rafinesque). Presented at the November 1983 Annual Meeting of the Society of Environmental Toxicology and Chemistry, Arlington, Virginia.  
  
-96hr LC<sub>50</sub> values for DBNPA and DBNPA of 1.8 and 0.55 mg/l, respectively.  
-to explain the observed toxicity of DBNPA and its degradation products a model was used that treated all constituents as a complex mixture with an assumed additive effect on the test species.

### Standard Derivation

Multiplying the Daphnia acute value of 2.3 mg/l by 0.2 to account for the percent DBNPA as the active ingredient and then applying a factor of 0.05 results in a value of 20 ug/l. Applying a factor of 0.05 to the DBAN acute value of 0.55 mg/l results in a value of 27 ug/l. However, fathead minnow may not be the most sensitive species to DBAN and a more stringent application factor should be used to arrive at a value of 20 ug/l. The anticipated additive affect of DBNPA and DBAN requires that a water quality standard be for the sum of the two chemicals. Therefore the recommended standard for the sum of DBNPA and DBAN in all freshwater classes except D is 20 ug/l.

Applying a factor of 0.1 to the Daphnia acute data results in a value of 50 ug/l. Following the same reasoning as above the recommended standard for the sum of DBNPA and DBAN in class D is 50 ug/l.