VALUE(S) ADDED 7-24-85

FACT SHEET REVISED _____

VALUE(S) REMOVED _____

Date: October 10,1984

Surface Water Quality
Standard Documentation

Chemical: Triphenyl phosphate

C.A.S, No.(s): 115-86-6

Basis (Human/Aquatic): Aquatic

Standard by Water Classification:

| | ug/l | Notes |
|---|---|---|
| Classes AA,AA-s;A;A-s;B;C | 4 | J |
| Class D | 40 | K |
| Classes SA;SB;SC;I | | |
| Class SD | | |

Remarks:

Summary of Information

1. Sasaki et al. 1981. Toxicity, absorption and elimination of phosphoric acid triesters by killifish and goldfish. Bull. Envir. Cont. and Tox. 27(6): 775-782.

   -goldfish and killifish $LC_{50}$ for TPP was 0.7 and 1.2 mg/l, respectively.
   -TPP partition coefficient = 57,260
   -fish held at 0.14 - 0.28 mg/l exhibited BCF of 500 in killifish and 150 in goldfish.

2. Muir, D.C.G., A.L. Yarechewski and N.P. Grift. 1983. Environmental dynamics of phosphate esters. III. Comparison of the bioconcentation of four triaryl phosphates by fish. Chemosphere 12(2): 155-166.
   -TPP BCF in rainbow trout = 1,096 and in fathead minnow = 1,010 for whole fish (about one gram).

3. Palawski, D., D.R. Buckler, and F.L. Mayer. 1983. Survival and condition of rainbow trout (Salmo gairdneri) after acute exposure to methyl parathion, triphenyl phosphate and DEF. Bull. of Env. Cont. and Tox. 30: 614-620.
   -tested rainbow trout at 12 days post swim-up: TPP 96hr $EC_{50}$ = 0.3 mg/l.

4. Muir, et al. 1980. Environmental dynamics of phosphates esters 1. Uptake and bioaccumulation of triphenyl phosphate by rainbow trout (Salmo gairdneri). Chemosphere 9(9): 525-532.
   -TPP BCF in rainbow trout fry = 2,590 (based on a fast clearance rate).
   -cite another study which found rainbow trout $EC_{50}$ of 240-400 ug/l.

5. Sasaki, et al. 1982. Bioconcentation and excretion of phosphoric acid triesters by killifish (Oryzeas latipes). Bull. of Env. Cont. and Tox. 28: 752-759.
-BCF in killifish in flow through test with water concentration of about 0.03 mg/l TPP was about 190; and in static system with water concentration of about 0.3 mg/l was 157-612.

6. Mayer, et al. 1981. Phosphate ester hydraulic fluids: an aquatic environmental assessment of Pydrauls 50E and 115E. Aquatic tox. and hazard assessment: 4th Conf. ASTM STP 737, D.R. Branson and K. L. Dickson, Eds., American Soc. for Testing and Materials, p. 103-123.

-96hr $LC_{50}$ for TPP: rainbow trout = 0.4 mg/l and fathead minnow = 0.6 mg/l.
-MATC for rainbow trout fry was greater than 1.4 ug/l; fathead minnow fry survival was greater than 87 and less than 230 ug/l.
-observed BCF in rainbow trout was 271; BCF calcualted from log P was 420.
-found TPP in fish muscle from natural water in Saginaw River, Mississippi River (MO) and Kanawha River (WV) from 0.1 to 0.6 mg/l.

Standard Derivation

Applying a factor of 0.01 to the acute value for rainbow trout of 0.4 mg/l results in a value of 4 ug/l which should be adopted as the standard for all freswhater classes except D. Applying a factor of 0.1 to the same acute value results in a value of 40 ug/l which should be adopted as the standard for class D.