# ACUTE DATA

| SPECIES | $EC_{50}/LC_{50}$ (µg/l) | TEST TYPE[a] | DURATION (HOURS) | SMAV[b] (µg/l) | GMAV[b] (µg/l) | REFERENCE NUMBER |
|---|---|---|---|---|---|---|
| Cladoceran | 2,700 | S,U | 48 | 2,837 | 2,837 | 1 |
| *Daphnia magna* | 2,980 | S,M | 48 | | | 2 |
| Channel Catfish | 380 | S,M | 96 | 330 | 330 | 2 |
| *Ictalurus punctatus* | | | | | | |
| Bluegill | 850 | S,M | 96 | 850 | 850 | 2 |
| *Lepomis macrochirus* | | | | | | |
| Rainbow Trout | 520 | S,M | 96 | 520 | 520 | 2 |
| *Oncorhynchus mykiss* | | | | | | |
| Fathead Minnow | 1,030 | S,U | 96 | 822 | 822 | 1 |
| *Pimephales promelas* | 1,100 | S,M | 96 | | | 3 |
| | 490 | S,U | 96 | | | 2 |

[a] S = static; U = unmeasured; M = measured.
[b] SMCV = Species Mean Chronic Value; GMCV = Genus Mean Chronic Value.

# CHRONIC DATA

| SPECIES | CHRONIC VALUE (µg/l) | SMCV[a] METHOD | GMCV[a] (µg/l) | REFERENCE (µg/l) | NUMBER |
|---|---|---|---|---|---|
| Cladoceran | 470-750 | Life Cycle | 594 | 594 | 2 |
| *Daphnia magna* | 594 | | | | |
| Rainbow Trout | 80-170 | Early Life Stage | 117 | 117 | 2 |
| *Oncorhynchus mykiss* | 117 | | | | |
| Fathead Minnow | 80-120 | Early Life Stage | 98 | 98 | 2 |
| *Pimephales promelas* | 98 | | | | |

[a] SMCV = Species Mean Chronic Value; GMCV = Genus Mean Chronic Value.

# REFERENCES

1. Pearson, J.G., J.P. Glennon, J.J. Barkley and J.W. Highfill. 1979. An Approach to the Toxicological Evaluation of a Complex Industrial Wastewater. In: L.L. Marking and R.A. Kimerle (Eds.), Aquatic Toxicology and Hazard Assessment, 2nd Symposium, ASTM STP 667, Philadelphia, PA:284-301.

2. Van der Schalie, W.H. 1983. The Acute and Chronic Toxicity of 3,5-Dinitroaniline, 1,3-Dinitrobenzene, and 1,3,5-Trinitrobenzene to Freshwater Aquatic Organisms. Technical Report 8305, U.S. Army Medical Bioengineering Research and Development Laboratory, Frederick, MD: 53 p.

3. Bailey, H.C. and R.J. Spanggord. 1983. The Relationship Between the Toxicity and Structure of Nitroaromatic Chemicals. In: W.E. Bishop, R.D. Cardwell and B.B. Heidolph (Eds.), Aquatic Toxicology and Hazard Assessment: Sixth Symposium. ASTM STP 802, Philadelphia, PA:98-107.

# CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

| Data Requirement OAC 3745-1-36(A)(1) | SPECIES | GMAV (µg/l) |
|---|---|---|
| (a) | Rainbow Trout | 520 |
| (b) | Channel Catfish | 380 |
| (c) | Fathead Minnow | 822 |
| (d) | *Daphnia magna* | 2,837 |

Secondary Acute Factor (SAF) = 7.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 380 ÷ 7.0
= 54.28 = 54 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 54.28 ÷ 2
= 27.14 = 27 µg/l

# CALCULATION OF CHRONIC AQUATIC VALUE (CAV)[a]

Experimentally determined Acute-Chronic Ratios (ACRs):

| SPECIES | ACUTE VALUE (µg/l) | CHRONIC VALUE (µg/l) | ACUTE-CHRONIC RATIO | SPECIES MEAN ACR |
|---|---|---|---|---|
| Cladoceran *Daphnia magna* | 2,980 | 594 | 5.02 | 5.02 |
| Rainbow Trout *Oncorhynchus mykiss* | 520 | 117 | 4.44 | 4.44 |
| Fathead Minnow *Pimephales promelas* | 490 | 98 | 5.00 | 5.00 |

Secondary Acute Chronic Ratio (SACR) = $\sqrt[3]{(5.02)(4.44)(5.00)} = 4.81$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 54.28 ÷ 4.81
= 11 µg/l

[a]See Ohio Administrative Code 3745-1-36 effective February 22, 2002.