

AR 226-1757

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OPPT/NOEC

PFOS Ecotoxicological Testing Results

Comparison of Effect Concentrations Calculated Using Different Sample Purity

2001 MAY 10 11:09 AM
Values calculated for mean measured concentrations, except where * (nominal).

Parameter	Result (90.49% purity)	Result (86.9% purity)	Units
Wastewater bacteria (OECD 209)			
3-hr EC ₅₀	> 905*	> 870*	mg/L
Inhibition at highest concentration tested (905 or 870 mg/L) = 39%			
<i>Selenastrum capricornutum</i> (freshwater green algae)			
96-hr NOEC (growth rate)	44	42	mg/L
96-hr ErC ₁₀ (95% Confidence Interval)	59 (54 - 63)	57 (52 - 60)	mg/L
96-hr ErC ₅₀ (95% Confidence Interval)	126 (115 - 138)	121 (110 - 133)	mg/L
<i>Daphnia magna</i> (freshwater water flea)			
Acute 48-hr NOEC	33	32	mg/L
Acute 48-hr EC ₁₀ (95% Confidence Interval)	53 (<11 - >91)	51 (<11 - >87)	mg/L
Acute 48-hr EC ₅₀ (95% Confidence Interval)	61 (33 - 91)	59 (32 - 87)	mg/L
Acute 48-hr EC ₉₀ (95% Confidence Interval)	63 (<11 - >91)	60 (<11 - >87)	mg/L
21-day Semi-Static Life-cycle Test NOEC	12	12	mg/L
21-day Semi-Static Life-cycle Test LOEC	24	23	mg/L
<i>Mysidopsis bahia</i> (marine shrimp)			
Acute 96-hr NOEC	1.1	1.1	mg/L
Acute 96-hr EC ₅₀ (95% Confidence Interval)	3.6 (3.0 - 4.6)	3.5 (2.9 - 4.4)	mg/L
35-day Flow-through Life Cycle Test NOEC	0.25	0.24	mg/L
35-day Flow-through Life Cycle Test LOEC	0.55	0.53	mg/L
<i>Unio complanatus</i> (freshwater mussel)			
Acute 96-hour NOEC	20	19	mg/L
Acute 96-hour LC ₅₀ (95% Confidence Interval)	59 (51 - 68)	57 (49 - 65)	mg/L
<i>Crassostrea virginica</i> Shell Deposition (oyster)			
Acute 96-hour NOEC	1.9	1.8	mg/L
Acute 96-hour EC ₅₀ (95% Confidence Interval)	>3.0	>2.9	mg/L
Solubility limits precluded obtaining EC ₅₀ value.			
Inhibition at highest concentration tested = 28%			
<i>Pimephales promelas</i> (fathead minnow)			
Acute 96-hr NOEC	3.3	3.2	mg/L
Acute 96-hr LC ₅₀ (95% Confidence Interval)	9.5 (8.0 - 11)	9.1 (7.7 - 11)	mg/L
47-days Early Life-Stage Toxicity Test NOEC	0.3	0.29	mg/L
47-days Early Life-Stage Toxicity Test LOEC	0.6	0.58	mg/L
Avian Dietary Toxicity Tests			
Acute Mallard Duck LC ₅₀ (95% Confidence Interval)	628 (448 - 958)	603 (430 - 919)	mg/kg
Acute Mallard Duck No mortality concentration	146	141	mg/kg
Acute Mallard Duck NOEC (weight loss)	37	35	mg/kg
Acute Bobwhite Quail LC ₅₀ (95% Confidence Interval)	220 (164 - 289)	212 (158 - 278)	mg/kg
Acute Bobwhite Quail no mortality concentration	73	70	mg/kg
Acute Bobwhite Quail NOEC	73	70	mg/kg
Other Affected Studies			
Water Solubility (Pure water, GLP study)	519	498	mg/L
Water solubility (freshwater, non-GLP)	371	326	mg/L
Water solubility (freshwater algal medium, non-GLP)	430	378	mg/L
Water solubility (saltwater, non-GLP)	24.9	21.8	mg/L