

Fipronil Benchmarks Summary

Aquatic Toxicity Summary – Most Sensitive Species (ng/L)

Chemical name	Fresh Water			Salt Water	
	Lowest EPA Aquatic Life Benchmark	<i>Chironomus tentans</i> LC 50*	<i>Chironomus tentans</i> EC 50 (paralysis)*	<i>Americamysis bahia</i> 96-H LC50	<i>Americamysis bahia</i> LOEC/NOEC
Fipronil	11 ^a	410	30-35**	140	5/--
Fipronil Sulfone (MB46136)	37 ^a	720	8**	560	2.6/<2.6
Fipronil Sulfide (MB45950)	110 ^a	2,130	9-11**	77	8.7/4.6
Fipronil desulfinyl (MB46513)	590 ^b	200,000	--	1,500	--/--

Notes: "--" means data not available. ^aInvertebrate, chronic. ^bFish, chronic

*Water-based endpoint. Test water may have been sediment pore water. Exposure time not clarified in EPA documents.

** Data from Weston, D. P. and M. J. Lydy (2014). "Toxicity of the insecticide fipronil and its degradates to benthic macroinvertebrates of urban streams." *Environ Sci Technol* **48**(2): 1290-1297.

Sources: Unless otherwise noted, all data from U.S. EPA Office of Pesticide Programs (OPP) aquatic life benchmarks

http://www.epa.gov/oppefed1/ecorisk_ders/aquatic_life_benchmark.htm and U.S. EPA OPP (2011). *Registration Review – Preliminary Problem Formulation for Ecological Risk and Environmental Fate, Endangered Species, and Drinking Water Assessments for Fipronil*.

Sediment Toxicity Summary – Most Sensitive Species (µg/g organic carbon, dry weight)

Parameter	<i>Chironomus tentans</i> 10-Day LC 50	<i>Chironomus tentans</i> 10-Day EC 50 (Immobilization)
Fipronil	0.13	0.10
Fipronil sulfone	0.12	0.04
Fipronil sulfide	0.16	0.06

Note: Typical California sediment organic carbon content is about 1%.

Source: Maul, J. D., A. A. Brennan, et al. (2008). "Effect of Sediment-Associated Pyrethroids, Fipronil, and Metabolites on *Chironomus Tentans* Growth Rate, Body Mass, Condition Index, Immobilization, and Survival." *Environmental Toxicology and Chemistry* **27**(12): 2582-2590.