

# AQUATIC LIFE BENCHMARKS UPDATE

# AQUATIC LIFE BENCHMARKS

- Benchmarks are based on toxicity values from EPA-reviewed scientific studies used to estimate risk for pesticides and their degradates in their most recent publicly available ecological risk assessments and preliminary Problem Formulations written in support of pesticide registration or registration review
- Aquatic life benchmarks are estimates of the concentrations below which pesticides are not expected to represent a risk of concern for aquatic life
- State, tribal, and local governments use the aquatic life benchmarks in identifying and prioritizing sites and pesticides that may require further investigation
- Comparing a measured concentration of a pesticide in water with an aquatic life benchmark can be helpful in interpreting monitoring data
- Aquatic Life Benchmarks are generated for degradates when suitable toxicity data are available
  - Benchmarks for pesticide degradates differ from those of the parent compound in that degrade values are not typically used to estimate risk for freshwater organisms

# OPP AQUATIC LIFE BENCHMARKS TABLE

2021 update includes 21 new and 121 updated benchmarks

New/updated benchmarks are highlighted in

red

<https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk>

▲ Pesticide	Year Updated	CAS number	Fish		Invertebrates		Nonvascular Plants	Vascular Plants	Office of Water Aquatic Life Criteria	
			Acute <sup>1</sup>	Chronic <sup>2</sup>	Acute <sup>3</sup>	Chronic <sup>4</sup>	Acute <sup>5</sup>	Acute <sup>6</sup>	Maximum Concentration (CMC)	Continuous Concentration (CCC)
<u><a href="#">1,2-Benzisothiazol-3(2H)-one, 2-butyl (BBIT)</a></u>	2021	4299-07-4	270	280	750	910	19	930 <sup>8</sup>		
<u><a href="#">1,2-benzisothiazolin-3-one (BIT)</a></u>	2021	2634-33-5	270	280	750	910	19	930 <sup>8</sup>		
<u><a href="#">1-Naphthalene acetic acid (NAA)</a></u>	2021	86-87-3	14000	1200	90000	11000	6100	4200		
<u><a href="#">1-Naphthalene acetic acid ammonium salt</a></u>	2021	25545-89-5	14000	1200	90000	11000	6100	4200		
<u><a href="#">1-Naphthalene acetic acid potassium salt</a></u>	2021	15165-79-4	14000	1200	90000	11000	6100	4200		
<u><a href="#">1-Naphthaleneacetamide (NAD)</a></u>	2021	86-86-2	14000	1200	90000	11000	6100	4200		
<u><a href="#">1-Naphthaleneacetic Acid Ethyl Ester (NAA Ester)</a></u>	2021	2122-70-5	14000	1200	90000	11000	6100	4200		

# 2021 NEW AQUATIC BENCHMARKS

- Broflanilide;
- Fluindapyr;
- Inpyrfluxam;
- Pethoxamid;
- Picarbutrazox;
- Pyridate;
- Tetraniliprole (and tetraniliprole degradates “BCS-CR60014”, “BCS-CY28897”, “BCS-CU81055”, “BCS-CT30672”, “BCS-CT30673”, “BCS-CY28906”, “BCS-CY28900”, “BCS-CR74541”, and “tetraniliprole quinazolinone”);
- Tiafenacil; and
- Trifludimoxazin (and trifludimoxazin degradates “M850H001”, “M850H002”, and “M850H004”)

# 2021 UPDATED AQUATIC BENCHMARKS

- 1,2-Benzisothiazol-3(2H)-one, 2-butyl (BBIT);
- 1,2-benzisothiazolin-3-one (BIT);
- 1-Naphthalene acetic acid (NAA);
- 1-Naphthalene acetic acid ammonium salt;
- 1-Naphthalene acetic acid potassium salt;
- 1-Naphthaleneacetamide (NAD);
- 1-Naphthaleneacetic Acid Ethyl Ester (NAA Ester);
- 4-aminopyridine;
- *Alpha*-Cypermethrin;
- Amicarbazone;
- *Beta*-Cyfluthrin;
- *Beta*-Cypermethrin;
- Bifenthrin;
- Cetylpyridinium Chloride;
- Chlorantraniliprole (and chlorantraniliprole degradates “IN-ECD73”, “IN-EQW78”, “IN-F6L99”, “IN-F9N04”, “IN-GAZ70”, “IN-LBA22-002”, “IN-LBA23-000”, and “IN-LBA24-002”);
- Chlorothalonil;
- Cycloate;
- Cyfluthrin;
- Cypermethrin;
- DCOIT;
- Deltamethrin;
- Dichlorvos (DDVP);
- Difenconazole degradates “1,2,4-Triazole”, and “Triazole Acetic Acid”;
- Dimethenamid;
- Diuron (and diuron degradates “DCPMU”, and “mCPDMU”);
- Endothall (“acid”, “dipotassium salt”, and “mono N,N-dimethylalkylamine salt”);
- Esfenvalerate;
- Ethofumesate (and ethofumesate degradates “CU88901”, “ethofumesate acetic acid”, and “NC8493”);
- Famoxadone (and famoxadone degradates “IN-H3310-2”, “IN-JL856”, “IN-JS940”, “IN-KF015”, “IN-KZ007”, “IN-MN467”, “IN-MN468”, and “IN-MN968”);

# 2021 UPDATED AQUATIC BENCHMARKS

- Fenbuconazole;
- Fenpropathrin;
- Fipronil (and fipronil degradates “fipronil desulfinyl (MB46513)”, “fipronil sulfide (MB45950)”, and “fipronil sulfone (MB46136)”);
- Fluometuron;
- Fluoxastrobin;
- Flutriafol;
- Folpet (and folpet degradate “Phthalimide”);
- Forchlorfenuron;
- *Gamma*-cyhalothrin;
- Halohydantoin (and halohydantoin degradate “DMH”);
- Ipconazole;
- Iprodione;
- Isoxaflutole (and isoxaflutole degradate “rpa203328”);
- *Lambda*-cyhalothrin;
- Mesotrione;
- Metaldehyde;
- Metconazole;
- MIT/CMIT;
- Monosodium Methane arsonate (MSMA);
- Naled;
- Napropamide;
- Nicarbazin degradate HDP;
- Nicarbazin DNC;
- Novaluron (and novaluron degradates “Chloroaniline”, and “Chlorophenyl urea”);
- Oocthilonone, 2-n-Octyl-4-isothiazoline-3-one (OIT);
- Oxadiazon;
- Permethrin;
- Phorate (and phorate degradates “Phorate Sulfone”, and “Phorate Sulfoxide”);
- Phosmet (and phosmet degradate “Phosmet Oxon”);
- Picloram potassium salt;
- Picloram TIPA Salt;
- Polixetium Chloride;
- Propargite;
- Propiconazole;
- Prothioconazole (and prothioconazole degradates “Prothioconazole-desthio”, and “Prothioconazole-S-methyl”);
- Pyrethrins;
- Pyridalyl;
- Pyrimethanil degradate 2-amino-4,6-dimethylpyrimidine;
- Sodium Chlorate;

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- Sodium Pyrithione;
- Spiromesifen (and spiromesifen degradate “Spiromesifen-enol”);
- Spirotetramat;
- Strychnine;
- Telone (and telon degradates “Telone (1,3-D) Degradate 3-chloroacrylic acid”, and “Telone (1,3-D) Degradate 3-chloroallyl alcohol”);
- Tembotrione;
- Tetraconazole;
- Thiencarbazon-methyl;
- Thiophanate methyl degradate Carbendazim (HOE 017411);
- Tolfenpyrad;
- Trichlorfon;
- Zinc Pyrithione; and
- Ziram

# RELATIONSHIP WITH AQUATIC LIFE CRITERIA

- For some chemicals, the EPA Office of Water has published national recommended Aquatic Life Criteria which include the acute Criterion Maximum Concentration (CMC) and the chronic Criterion Continuous Concentration
- When these values are available for specific pesticides, they are included along with their Benchmarks
- The data quality objective for the Aquatic Life Criteria is to ensure that they are accurately transcribed from the National Recommended Aquatic Life Criteria table
  - <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>