

Simplified Summary - Pesticide Degradates for Monitoring Prioritization

This table is a clarifying tool and supplement to EPA's Aquatic life and human health benchmarks for pesticides, which list many pesticide degradates. General instructions (see cover memo): EPA's Pesticides Aquatic Life Benchmarks Table lists degradates immediately after parent chemical for benchmarks developed in 2013 and later. (As of January 2015, the EPA Human Health Benchmark Table was not yet structured in this manner). Where degradates are clearly listed in the pesticides benchmark tables, select the lowest value among parent and degradates for use in prioritization. This table lists only special cases, where the relationship between parent chemical and degradate(s) is not currently clearly delineated in EPA's Aquatic Life and human health benchmark tables.

Pesticide(s)	Degradate(s)	Degradate Reference Values	Handling in Prioritization Process
2,4-D, 2,4-DB, 2,4-DP (all forms)	2,4-dichlorophenol (2,4-DCP)	EPA drinking water Health Advisory of 20 ug/L	Prioritize individually AND - for human health (drinking water) only - sum total use of these pesticides and prioritize with degradate reference value
Bromoxynil Heptanoate and Bromoxynil Octanoate	Bromoxynil	Both EPA pesticide human health benchmark and OPP aquatic life benchmark	Sum total use of these pesticides and prioritize with degradate reference values only (Parent half lives <1 day)
Chlorpyrifos and Triclopyr (acid, butoxyethyl ester and triethylamine salt)	3,5,6-trichloro-2-pyridinol (TCP)	EPA OPP aquatic life benchmark (human health benchmark anticipated in future)	Prioritize individually (triclopyr acid and salts should appear together in grouping list) AND sum total use of these pesticides and prioritize with degradate reference value.
Cyhalothrin, Cypermethrin, esfenvalerate, fenpropathrin, permethrin (include all isomers of these pyrethroids)	3-phenoxybenzoic acid (3-PBA)	EPA OPP aquatic life benchmark	No need to consider; degradate less toxic than parent
Dacthal (DCPA)	tetrachloroterephthalic acid (TPA)	EPA drinking water Health Advisory	No need to consider; degradate less toxic than parent
Dazomet, Metam sodium, and Metam potassium	methylisothiocyanate (MITC)	Both enforceable drinking water standard (CA DDW AAL* of 190 ug/L) and EPA OPP aquatic life benchmark	Sum total use of these pesticides and prioritize with degradate reference values only (parents immediately become degradate in water)
Dichlorvos (DDVP), Naled, and Trichlorfon	Dichlorvos (DDVP)	Degradate is also a registered pesticide	Sum total use of these pesticides and prioritize with Dichlorvos reference values (both Naled and Trichlorfon are rapidly transformed to Dichlorvos in the environment).
	2,2-dichloroacetic acid	EPA drinking water Health Advisory of 30 ug/L	No need to consider; degradate less toxic than parents

Dicamba and its salts	3,6-dichlorosalicylic acid (DCSA)	EPA OPP aquatic life benchmark	(Should appear on groupings list). Sum total use of all dicamba pesticides and prioritize with reference values for dicamba acid (all chemicals immediately become dicamba acid in water). No need to consider degradate, which is less toxic than parents.
Dichlobenil and Fluopicolide	2,6-dichlorobenzamide (BAM)	EPA pesticide human health benchmark	Because degradate is more toxic to humans than parent pesticides, for human health (drinking water), sum total use of these pesticides and prioritize with degradate reference values. For aquatic life, no need to consider degradate, which is less toxic to aquatic life than parent. Degradate forms slowly and is stable, so both parent and degradate appear in environment.
Endosulfan I/II	endosulfan sulfate	EPA water quality criteria for aquatic life protection	No need to consider; degradate has same water quality criteria and is less toxic than parent
Fipronil	Multiple degradates	EPA OPP aquatic life benchmark	No agricultural use
Mancozeb and Metiram	ethylene thiourea	Both EPA pesticide human health benchmark and OPP aquatic life benchmark	Sum total use of these pesticides and prioritize with degradate reference values only (water half-lives of parents <1 day). Values listed for these chemicals in EPA human health benchmarks table are for the degradate--not the parent
PCNB	pentachlorophenol	Both enforceable drinking water standards and EPA water quality criteria (lowest values are for human fish consumption)	Minor degradate; not necessary to include in prioritization
Pinoxaden	NOA 447204, NOA 497854	EPA OPP aquatic life benchmark	Prioritize based on lowest reference value among parent & degradates
Sodium tetrathiocarbonate	Carbon disulfide	EPA OPP aquatic life benchmark	Prioritize based on degradate reference values
Telone	3-chloroacrylic acid	EPA OPP aquatic life benchmark	Prioritize based on lowest reference

	3-chloroallyl alcohol	EPA OPP aquatic life benchmark	values of these two degradates (one forms, then degradates to the second one). (Parent will be excluded by volatility criteria)
Thiamethoxam	clothianidin	Degradate is also a registered pesticide	Sum total use of Thiamethoxam and Clothianidin use and prioritize with Clothianidin reference values
Thiophanate-methyl and Carbendazim (MBC)	carbendazim (MBC)	Degradate is also a registered pesticide	Sum total use of these pesticides and prioritize with the following reference values: Aquatic life - use benchmark values listed for thiophanate methyl (which reflect MBC); human health - use carbendazim (MBC) benchmarks
Tralomethrin	deltamethrin	Degradate is also a registered pesticide	Sum total use of Tralomethrin and Deltamethrin and prioritize with deltamethrin reference values
Triazole derivatives: bitertanol, bromuconazole, cyproconazole, difenoconazole, epoxiconazole, fenbuconazole, flusilazole, hexaconazole, ipconazole, metconazole, myclobutanil, paclobutrazole, propiconazole, prothioconazole, tebuconazole, tetraconazole, triadimefon, triadimenol,	1,2,4-triazole triazole alanine triazole acetic acid	EPA pesticide human health benchmark EPA pesticide human health benchmark EPA pesticide human health benchmark	Prioritize individually AND - for human health (drinking water) only - sum total use of these pesticides and prioritize with degradate benchmark (all three degradates have the same benchmark)

*CA DPH AAL = California State Water Board Division of Drinking Water Archived Advisory Level (an enforceable drinking water standard - see drinking water reference value information)