

BAPPG/BACWA Wastewater Pesticides Watch List

Currently registered pesticides that may occur in wastewater

Priority	Basis for Priority Assignment	Pesticides	
1 – High Concern	a) POTW effluent monitoring data ¹ exceeding benchmarks b) Known cause of process interference c) Present in recycled water or biosolids at concentrations that limit use d) SF Bay area receiving water 303(d) listing for the pesticide or degradate e) Identified by Regional Monitoring Program (RMP) as a High or Very High Concern	Pyrethroids [#] (21 chemicals ²) Fipronil [#] Imidacloprid [#]	
2 – Moderate Concern	a) Pesticide contains a Clean Water Act Priority Pollutant b) SF Bay area receiving water 303(d) listing for the pesticide, degradate or contaminant that also has non-pesticide sources c) Identified by RMP as a Moderate Concern	Carbendazim Copper pesticides ⁺ Silver pesticides ⁺ Zinc pesticides ⁺ Quaternary Ammonium Compounds (QACs) ⁺³	
3 – Possible Concern	Monitoring data ¹ approaching <u>or</u> wastewater discharge modeling predicting: a) effluent or receiving water benchmark exceedances b) process interference c) limitations on use of recycled water or biosolids <u>or</u> used for pet flea control	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> Amitraz[#] Ammonium bromide 1,2-Benzisothiazolin-3-one (BIT) Bronopol (Bioban) Cetylpyridinium Chloride Chlorhexidine Chlorinated isocyanurates⁺ Clothianidin 2,2-Dibromo-3-Nitrilopropionamide (DBNPA) 4,5-dichloro-2-octyl-3(2H)-isothiazolone (DCOIT) Dichlobenil[^] Dinotefuran[#] Diquat dibromide[^] Fluralaner (FDA reg.)[#] Folpet Halohydrantoin⁺ Indoxacarb[#] IPBC Malathion (lice) Metam sodium[^] </div> <div style="width: 50%;"> 2-methyl-4-isothiazolin-3-one (MIT) 5-chloro-2-methyl-4-isothiazolin-3-one (CMIT) Methoprene[#] Moxidectin (FDA reg.)[#] Nanopesticides (all) 10,10 oxybisphenoxarsine (OBPA) o-Benzyl-p-chlorophenol (OBPC) Octhilineone 2-n-Octyl-4-isothiazoline-3-one (OIT) Organic Esters of Phosphoric Acid (OEPA) o-Phenyl phenol Polyhexamethylenebiguanidine (PHMB)⁺ Potassium Peroxymonosulfate⁺⁴ Pyriproxyfen⁺⁺ Selemectin (FDA reg.)[#] Spinetoram[#] Tetrachlorvinphos[#] (TCVP) Triclosan Tri-n Butyl Tetradecyl Phosphonium Chloride (TTPC) </div> </div>	
Pools & hot tubs	Avoiding collection system backups	Busan-77 ⁺ Chlorine ⁺ Hypochlorites ⁺ Sodium bromide ⁺ Sodium tetraborate ⁺⁵ (plus chemicals above with “+”)	
Pending	New pesticides that could threaten wastewater depending on uses approved and market	Abamectin Broflanilide Chlorfenapyr Cyclanilprole Neonicotinoids not listed above ⁶ Novaluron	

	volumes for existing minor indoor uses	Chlorantraniliprole Cyantraniliprole	SI-183 (1R-Phenothrin)
No Concern	No tracking trigger	Most of the 1,000 existing pesticides	
Unknown	Lack of information. No systematic screening has ever been completed for urban pesticides.	Unknown	

¹Not necessarily data from SF Bay Area

²Pyrethroids = Allethrin, Bifenthrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Cyphenothrin, Deltamethrin, Esfenvalerate, Etofenprox, Flumethrin, Imiprothrin, Metofluthrin, Momfluorothrin, Permethrin, Prallethrin, Resmethrin, Sumethrin [d-Phenothrin], Tau-Fluvalinate, Tefluthrin, Tetramethrin, Tralomethrin

³ QACs used indoors include ADBAC, BAC, ATMAC, DADMAC, DDAC, EBAC, APyC, and others. Additional QACs are listed on the pool/spa pesticide list below.

⁴ Included under EPA registration review name for Hypochlorous Acid; EPA may determine that it is an adjuvant subject only to CA registration.

⁵ EPA Registration Review name: "Boric acid/Sodium Salts"

⁶ Neonicotinoids = Acetamiprid, Clothianidin, Dinotefuran, Imidacloprid, Nitenpyram, Thiacloprid, Thiamethoxam

#Has pet flea/tick use

+Has pool and/or hot tub use in California

^Has root control use in California

Swimming Pool and Hot Tub Pesticides

Halohydrantoin:

- Trichloro-S-Triazinetrione
- 1-Bromo-3-Chloro-5,5-Dimethyl Hydrantoin
- 1,3-Dichloro-5,5-Dimethylhydrantoin
- 1,3-Dichloro-5-Ethyl-5-Methylhydrantoin
- 1,3-Dibromo-5,5-Dimethylhydrantoin
- Imidazolidinedione

Hypochlorites: Calcium Hypochlorite, Sodium Hypochlorite, Potassium Hypochlorite, Lithium Hypochlorite

Chlorinated isocyanurates: Sodium Dichloro-S-Triazinetrione, Sodium Dichloro-S-Triazinetrione Dihydrate

Copper:

- Copper Sulfate (Pentahydrate)
- Copper Ethanolamine Complexes Mixed
- Copper Triethanolamine Complex
- Copper Citrate
- Copper

Quaternary Ammonium Compounds (QACs; also sometimes called Quats/ADBAC, DDAC, and EBAC family chemicals):

- Alkyl (50%C14, 40%C12, 10%C16) Dimethylbenzyl Ammonium Chloride
- Alkyl (60%C14, 30%C16, 5%C12, 5%C18) Dimethylbenzyl Ammonium
- N-Dialkyl (60%C14, 30%C16, 5%C12, 5%C18) Methyl Benzyl Ammonium Chloride
- Alkyl (68%C12, 32%C14) Dimethylethylbenzyl Ammonium Chloride
- Didecyl Dimethyl Ammonium Chloride
- Alkyl (58%C14, 28%C16, 14%C12) Dimethylbenzyl Ammonium Chloride
- Alkyl (67%C12, 25%C14, 7%C16, 1%C8,C10,C18) Dimethylbenzyl Ammonium Chloride
- Alkyl (95%C14, 3%C12, 2%C16) Dimethyl Benzyl Ammonium Chloride
- Alkyl (50%C14, 40%C12, 10%C16) Dimethylbenzyl Ammonium Saccharinate
- Alkyl (61%C12, 23%C14, 11%C16, 2.5%C8 & C10, 2.5%C18) Dimethyl Benzyl Ammonium Chloride
- Alkyl (67%C12, 25%C14, 7%C16, 1%C18) Dimethylbenzyl Ammonium Chloride

Silver:

- Metallic Silver
- Silver Chloride
- Silver Iodide, Colloidal

Others:

- Busan-77 [a polyquat also known as Polixetonium Chloride or Poly(Oxyethylene) (Dimethylimino) Ethylene (Dimethylimino) Ethylene Dichloride]
- Sodium Bromide (EPA "Inorganic halides")
- Zinc Sulfate Monohydrate
- Polyhexamethylene Biguanidine (PHMB)
- Chlorine
- Sodium Tetraborate (Pentahydrate) (EPA "Boric Acid/Sodium Salts")
- Pyriproxyfen
- 10,10 oxybisphenoxarsine (OBPA): used in coating interiors of pools and hot tubs
- Potassium Peroxymonosulfate and Potassium Peroxymonosulfate Sulfate