

BAPPG/BACWA Wastewater Pesticides Watch List
Currently registered pesticides that may occur in wastewater

Priority	Basis for Priority Assignment	Pesticides		
1 – High Concern	<ul style="list-style-type: none"> a) POTW effluent monitoring data¹ 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 	Pyrethroids [#] (21 chemicals ²) Fipronil [#] Imidacloprid [#]		
2 – Moderate Concern	<ul style="list-style-type: none"> 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 	Copper pesticides ⁺ Silver pesticides ⁺ Zinc pesticides ⁺		
3 – Possible Concern	Monitoring data ¹ approaching <u>or</u> wastewater discharge modeling predicting: <ul style="list-style-type: none"> 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 	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top;"> ADBAC⁺ Amitraz[#] Ammonium bromide 1,2-Benzisothiazolin-3-one (BIT) Bronopol (Bioban) Cetylpyridinium Chloride Chlorhexidine Chlorinated isocyanurates⁺ Clothianidin DDAC⁺ 4,5-dichloro-2-octyl-3(2H)-isothiazolone (DCOIT) Dichlobenil[^] Dinotefuran[#] Diquat dibromide[^] Folpet Halohydantoin⁺ Indoxacarb[#] IPBC Malathion (lice) </td> <td style="vertical-align: top;"> Metam sodium[^] 2-methyl-4-isothiazolin-3-one (MIT) 5- chloro-2-methyl-4-isothiasolin-3-one (CMIT) Methoprene[#] Nanopesticides (all) 10,10 oxybisphenoxarsine (OBPA) o-Benzyl-p-chlorophenol (OBPC) Othilinone 2-n-Octyl-4-isothiazoline-3-one (OIT) Organic Esters of Phosphoric Acid (OEPA) o-Phenyl phenol Polyhexamethylenebiguanidine (PHMB)⁺ Potassium Peroxymonosulfate⁺⁵ Pyriproxyfen^{##} Spinetoram[#] Tetrachlorvinphos[#] (TCVP) Triclosan Tri-n Butyl Tetradecyl Phosphonium Chloride (TTPC) </td> </tr> </table>	ADBAC ⁺ Amitraz [#] Ammonium bromide 1,2-Benzisothiazolin-3-one (BIT) Bronopol (Bioban) Cetylpyridinium Chloride Chlorhexidine Chlorinated isocyanurates ⁺ Clothianidin DDAC ⁺ 4,5-dichloro-2-octyl-3(2H)-isothiazolone (DCOIT) Dichlobenil [^] Dinotefuran [#] Diquat dibromide [^] Folpet Halohydantoin ⁺ Indoxacarb [#] IPBC Malathion (lice)	Metam sodium [^] 2-methyl-4-isothiazolin-3-one (MIT) 5- chloro-2-methyl-4-isothiasolin-3-one (CMIT) Methoprene [#] Nanopesticides (all) 10,10 oxybisphenoxarsine (OBPA) o-Benzyl-p-chlorophenol (OBPC) Othilinone 2-n-Octyl-4-isothiazoline-3-one (OIT) Organic Esters of Phosphoric Acid (OEPA) o-Phenyl phenol Polyhexamethylenebiguanidine (PHMB) ⁺ Potassium Peroxymonosulfate ⁺⁵ Pyriproxyfen ^{##} Spinetoram [#] Tetrachlorvinphos [#] (TCVP) Triclosan Tri-n Butyl Tetradecyl Phosphonium Chloride (TTPC)
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Pools & hot tubs	Avoiding collection system backups	Busan-77 ⁺ Chlorine ⁺ Hypochlorites ⁺ Sodium bromide ⁺ Sodium tetraborate ⁺⁴ (plus chemicals above with “+”)		
Pending	New pesticides that could threaten wastewater depending on uses approved and market volumes for existing minor indoor uses	Abamectin Broflanilide Chlorfenapyr Chlorantraniliprole Cyantraniliprole Cyclaniliprole Neonicotinoids not listed above ³ Novaluron 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	Unknown		

	been completed for urban pesticides.	
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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

³Neonicotinoids = Acetamiprid, Clothianidin, Dinotefuran, Imidacloprid, Nitenpyram, Thiacloprid, Thiamethoxam

⁴EPA Registration Review name: "Boric acid/Sodium Salts"

⁵EPA Registration Review name: Hypochlorous Acid; EPA may determine that it is an adjuvant subject only to CA registration.

⁺Has pool and/or hot tub use in California

[^]Has root control use in California

[#]Has pet flea/tick use

Swimming Pool and Hot Tub Pesticides

Halohydantoins:

- Trichloro-S-Triazinetrione
- 1-Bromo-3-Chloro-5,5-Dimethyl Hydantoin
- 1,3-Dichloro-5,5-Dimethylhydantoin
- 1,3-Dichloro-5-Ethyl-5-Methylhydantoin
- 1,3-Dibromo-5,5-Dimethylhydantoin
- 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

Quats/ADBAC and DDAC 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 [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