SUPPORTING INFORMATION

Chemical Removal in Waste Stabilisation Pond Systems of Varying Configuration

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WWTP 1

WWTP 2

WWTP 3

WWTP 4

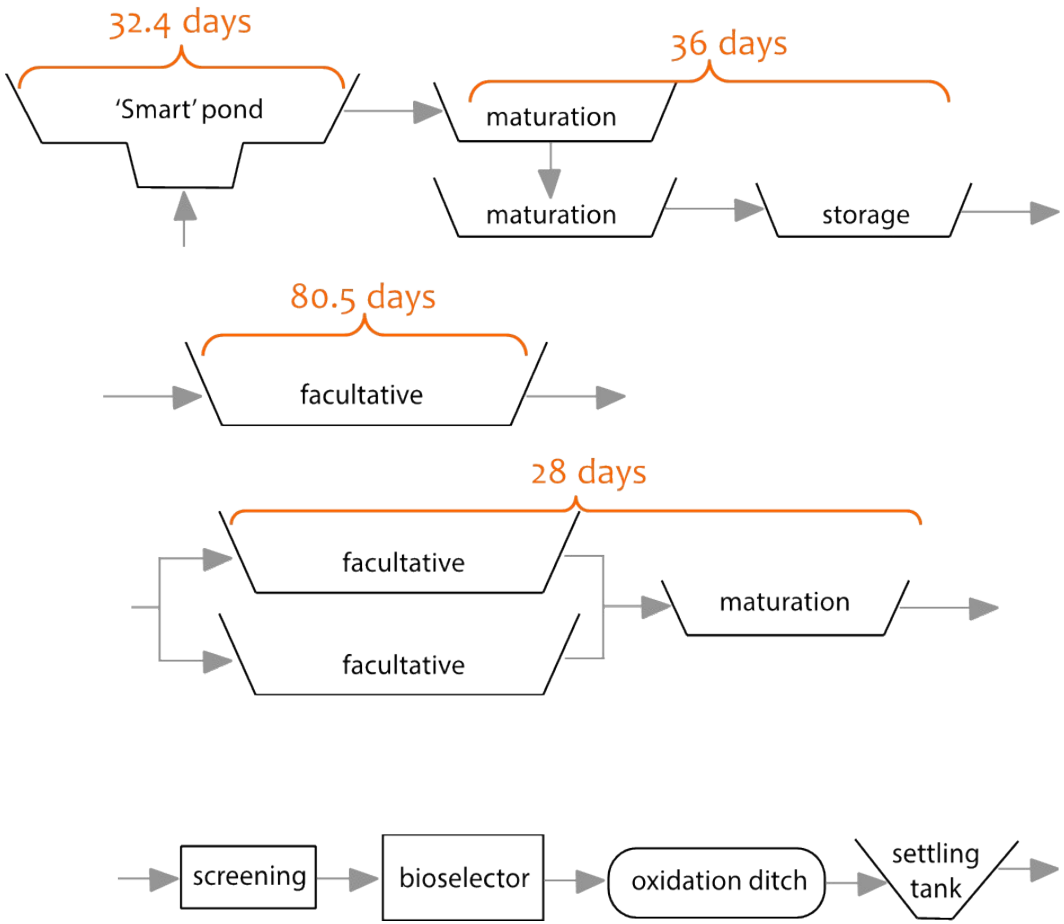

Figure S1. Schematic representations of the WWTPs studied, including indicative wastewater residence time for the waste stabilisation ponds.

Table S1

Selected Australian Bureau of Meteorology climate data for the study sites in this project. WWTP 1-3 are WSPs, while WWTP 4 is an oxidation ditch. WWTP 1 is in a tropical region and was sampled in the wet and dry seasons (February and September), while WWTPs 2-4 are located in temperate regions and were sampled in summer and winter (February and July). Temperature and rainfall were obtained from the closest weather station in the Australian Bureau of Meteorology climate database (http://www.bom.gov.au/climate/data/index.shtml). Solar exposure ranges were obtained from maps of the average daily global solar exposure over Australia (each month, season and annually) for the period 1990 to 2011 (http://www.bom.gov.au/jsp/ncc/climate_averages/solar-exposure/index.jsp).

	Mean maximum temperature (°C)			Daily solar exposure MJ/m^2 [a]			Mean Rainfall (mm)		
	Annual	Event 1 (February)	Event 2 (July or September)	Annual	Event 1 (February)	Event 2 (July or September)	Annual	Event 1 (February)	Event 2 (July or September)
WWTP 1	32.3	32.9	31.9	21-24	21-24	24-27	628.1	181.0	1.4
WWTP 2	25.4	33.6	16.9	18-21	24-27	9-12	418.1	14.1	76.9
WWTP 3	23.3	29.6	17.5	18-21	24-27	9-12	666.7	12.1	116.9
WWTP 4	23.5	29.6	17.5	18-21	24-27	9-12	666.7	12.1	116.9

Table S2
Sample volumes, preservation reagents and times to analysis

Analytes	Volume required (mL)	Container	Quenching agent in each bottle	Storage time until analysis
Antibiotics Pharmaceuticals (Acid & Neutral Basic) Benzotriazoles & Benzothiazoles Artificial sweeteners Xray contrast media	2000	4 L Amber Glass Winchester Bottle	No quenching required	1 week
DOC	40			<3 days
Microbes	1000	1 L Plastic Bottles	Bleached, rinse with sample before filling	<5 days
Outsourced Analyses				
Pesticides (QHSS)	1000	1 L Amber Glass Bottle	1 mL of $Na_2S_2O_3$ solution (80 mg/L; 12.56g $Na_2S_2O_3.5H_2O$/100mL)	<1 week*
Nitrogen species, Phosphorus & Sulphate (ChemCentre)	150	Draw from 4L Glass Winchester and filter through 0.45 µm membrane into 100 mL and 50 mL plastic bottles after sampling (no quenching required)		<3 days*

* Represents time for sample storage and/or filtration before delivery to outsourced laboratory for analysis. All samples were stored in the dark at 4°C.

Table S3
Details of reagents and standards used in the chemical analysis.

Chemical	Grade/Purity	Supplier
	Solvents	
Methanol Acetonitrile	ChromAR	Mallinckrodt Baker (New Jersey, USA)
Ethyl Acetate	>99.8%	Sigma-Aldrich (Sydney, Australia)
	pH adjustment	
Hydrochloric acid Formic Acid	32% (HCl) 99%	Ajax Finechem (Sydney, Australia)
	DOC analysis	
Potassium hydrogen phthalate Sodium carbonate Sodium bicarbonate	≥ 99.7%	Ajax Finechem (Sydney, Australia)
	Pharmaceuticals [1]	
Morphine hydrochloride Paracetamol Carbamazepine Cyclophosphamide monohydrate Phenytoin Diazepam Ketoprofen Warfarin Benzafibrate Indomethacin Ibuprofen Naproxen Clofibric Acid Gemfibrozil Prozac (Fluoxetine hydrochloride) Cotinine Caffeine Theophylline	≥ 97%	Sigma-Aldrich (Sydney, Australia)
Atorvastatin, calcium salt	≥ 97%	Toronto Research Chemicals (North York, Canada)
Ifosfamide	≥ 97%	United States Pharmacopoeia-USP (Rockville, MD, USA)
	Antibiotics [2]	
Metronidazole Sulfamethozaxole Trimethoprim	>99%	Riedel-de Hae¨n (Sydney, Australia)
Clarithromycin	>97.7%	United States Pharmacopeia-USP, (Maryland, USA)
Azithromycin Tylosin Tartrate	>95%	Fluka, Sigma-Aldrich (Sydney, Australia)
Clindamycin hydrochloride	>90%	Sigma-Aldrich (Sydney,

Roxithromycin		Australia)
Erythromycin Dehydro Erythromycin	>98%	Toronto Research Chemicals (North York, Canada)
	Corrosion Inhibitors [3]	
2-Hydroxybenzothiazole Benzothiazole 5-Chloro-2-Methylbenzothiazole 2-(Methylthio)benzothiazole 2-Aminobenzothiazole Benzotriazole 5-methyl-1H-benzotriazole 5-Chlorobenzotriazole 5,6-Dimethyl-1H-benzotriazole	≥ 97%	Sigma-Aldrich (Sydney, Australia)
1-Butylbenzotriazole	95%	Waterstone Technology LLC (Indiana, USA)
1-Hydroxybenzotriazole	98%	AK Scientific (California,USA)
4-Methylbenzotriazole	95%	Toronto Research Chemicals (North York, Canada)
	X-ray Iodinated Contrast Media [4]	
Iopromide	769 mg/mL	Bayer Schering Pharma AG, (Berlin, Germany)
Iomeprol	714 mg/mL	Bracco s.p.a. (Milano, Italy)
Diatrizoic Acid Iothalamic Acid Iodipamide Iopamidol Iohexol Ioxaglic Acid	100%	United States Pharmacopeia-USP, (Maryland, USA)
	Artificial Sweeteners [5]	
Sucralose Saccharin, sodium salt hydrate Neohesperidin dihydrochalcone Stevioside Diketopiperazine (Glycine anhydride)	≥ 95%	Sigma-Aldrich (Sydney, Australia)
Acesulfame K Neotame	≥ 98%	Fluka, Sigma-Aldrich (Sydney, Australia)
Aspartame Cyclamate, sodium salt	≥ 99%	Supelco, Sigma-Aldrich (Sydney, Australia)
Alitame	98%	Toronto Research Chemicals (North York, Canada)

Table S4
Organic micropollutants analysed by Queensland Health Forensic and Scientific Services (QHFSS).

Pesticides (including metabolites)					Others (non-pesticides)**
Propargite	Carbaryl	Azinphos-ethyl	Demeton-S	α-Endosulfan	*N*, *N*-Butylbenzenesulfonamide
Benalaxyl	Methoprene	Azinphos-methyl	Dichlorvos	Permethrin	Butyltoluenesulfonamide
Captan*	Propoxur	Pirimiphos-methyl	Disulfoton	Fenthion (methyl)	Musk Ketone
Dimethomorph	Cyfluthrin	Amitraz	Ethion	Heptachlor	Musk Xylene
Furalaxyl	Cyhalothrin	Hexazinone	Ethoprophos	Methoxychlor	2,4-Di-*t*-butylphenol*
Metalaxyl	Cypermethrin	Metribuzin	Fenthion-ethyl	DDT (*op*)	2,6-Di-*t*-butyl-*p*-cresol (BHT)
Desethyl Atrazine	Deltamethrin	Tebuthiuron	Malathion (Maldison)	DDT (*pp*)	2,6-Di-*t*-butylphenol
Desisopropyl Atrazine	Fenvalerate	Fipronil	Mevinphos	Endrin	Tris(dichloropropyl) phosphate
Benzenesulfonanilide*	Tetramethrin	Pirimicarb	Oxydemeton-methyl	Lindane (γ-HCH)	Tris(chloroethyl) phosphate
Fluazifop-butyl	Dimethoate	Ametryn	Profenofos	Chlordene	Tris(chloropropyl) phosphate isomers
Haloxyfop-2-etotyl	Omethoate	Atrazine	Prothiofos	Chlordene epoxide	Galaxolide
Haloxyfop-methyl	Metolachlor	Prometryn	Sulprofos	DDD (*op*)	Tonalid
Chlorpyrifos oxon	Molinate	Propazine	Tetrachlorvinphos	DDD (*pp*)	Tri-n-butyl phosphate
3,4-Dichloroaniline	Bromacil	Simazine	Tetradifon	α-HCH	1H-Benzotriazole
Oxyfluorfen	Fluometuron	Terbuthylazine	Bifenthrin	β-HCH	1H-Benzotriazole, 1-methyl
Propanil	Diuron*	Terbutryn	Bioresmethrin	δ-HCH	1H-Benzotriazole, 5-methyl
Triallate	Oxadiazon	Procymidone	Phenothrin	Chlordene-1-hydroxy	Moclobemide
Icaridin*	Diazinon	Vinclozolin	Transfluthrin	Oxychlordane	Praziquantel*
DEET	Etrimphos	Triclosan methyl ether	2-Benzyl-4-chlorophenol*	Nonachlor cis	
Chlorpyrifos	Methidathion	Hexachlorobenzene	4-Chloro-3,5-dimethylphenol	Nonachlor trans	
Chlorpyrifos-methyl	Fluvalinate	Triclosan	Demeton-S-methyl	DDE (*op*)	
Famphur	Pyrazophos	Carbophenothion	Dioxathion	DDE (*pp*)	
Fenamiphos	Bitertanol	Chlorfenvinphos	Phorate	Endosulfan ether	
Fenitrothion	Flutriafol*	Diclofop-methyl	β-Endosulfan	Endosulfan lactone	
Isofenphos	Propiconazole	Aldrin	Temephos	Endosulfan sulfate	
Monocrotophos	Tebuconazole	Chlordane cis	Cadusafos	Endrin aldehyde	
Parathion-methyl	Triadimefon	Chlordane trans	Terbufos	Heptachlor epoxide	
Parathion (ethyl)	Triadimenol	Dicofol*	Coumaphos	Triethyl phosphate	
Phosmet	Thiabendazole	Dieldrin	Fenchlorphos	Chlordene-1-hydroxy-2,3-epoxide	
Phosphamidon	Pendimethalin	Bromophos-ethyl	Rotenone		
Bendiocarb	Trifluralin	Demeton-O-methyl*	Piperonyl butoxide		

* Analysed for some samples only
** Non-pesticide compounds include flame retardants, plasticizers, musks, corrosion inhibitors and pharmaceuticals.

Table S5
Organic micropollutants analysed at Curtin University

Pharmaceuticals	Antibiotics	Benzotriazoles and Benzothiazoles	X-Ray Contrast Media	Artificial Sweeteners
Morphine	Tylosin	2-Hydroxybenzothiazole	Diatrizoic Acid	Acesulfame
Paracetamol	Erythromycin	Benzothiazole	Iothalamic Acid	Cyclamate
Prozac	Dehydro Erythromycin	5-Cl-2-Methylbenzothiazole	Iodipamide	Saccharin
Benzafibrate	Clarithromycin	2-Methylthiobenzothiazole	Iopamidol	Aspartame
Indomethacin*	Azithromycin	2-Aminobenzothiazole	Iomeprol	Diketopiperazine
Ifosfamide	Clindamycin	1-Hydroxybenzotriazole	Iohexol	Neotame
Cyclophosphamide	Roxithromycin	Benzotriazole	Iopromide	Alitame
Phenytoin	Metronidazole	4+5-Me Benzotriazole	Ioxaglic Acid	Neohesperidine
Carbamazepine	Sulfamethozaxole	5-Chlorobenzotriazole		Stevioside
Diazepam	Trimethoprim	5,6-DiMe Benzotriazole		Sucralose
Atorvastatin		1-Butylbenzotriazole		
Cotinine				
Caffeine				
Theophylline				
Ketoprofen				
Warfarin				
Naproxen				
Clofibric Acid				
Ibuprofen				
Gemfibrozil				

* Analysed for some samples only

Table S6
Field measurements taken during sampling.

Sampling point	Sampling date	pH	Conductivity (µS/cm)	Dissolved oxygen (mg/L)	Temperature (°C)
WWTP 1					
Influent Wastewater	19 Feb 2015	7.90	1309	<0.01	34.7
Post-combined Pond	19 Feb 2015	7.65	1150	5.58	34.8
Treated Wastewater	19 Feb 2015	9.20	1109	16.2	37.5
WWTP 1					
Influent Wastewater	7 Sept 2015	7.58	1337	<0.01	29.2
Post-combined Pond	7 Sept 2015	7.51	1303	3.73	29.3
Treated Wastewater	7 Sept 2015	8.47	1226	9.69	29.2
WWTP 2					
Influent Wastewater	12 Feb 2015	7.68	1638	0.62	27.3
Treated Wastewater	12 Feb 2015	7.42	1693	0.22	27.0
WWTP 2					
Influent Wastewater	13 Jul 2015	7.75	1339	4.67	14.2
Treated Wastewater	13 Jul 2015	7.94	1342	5.63	13.1
WWTP 3					
Influent Wastewater	23 Feb 2015	7.72	1038	0.73	30.0
Post-facultative pond	23 Feb 2015	7.88	957	8.19	26.8
Treated Wastewater	23 Feb 2015	8.66	943	17.92	25.4
WWTP 3					
Influent Wastewater	14 Jul 2015	7.78	1060	1.61	19.1
Post-facultative pond	14 Jul 2015	7.33	901	1.01	15.4
Treated Wastewater	14 Jul 2015	7.67	858	3.37	14.4
WWTP 4					
Influent Wastewater	23 Feb 2015	8.30	1146	0.17	25.3
Treated Wastewater	23 Feb 2015	7.77	672	6.2	24.9
WWTP 4					
Influent Wastewater	14 Jul 2015	8.43	1021	0.86	20.4
Treated Wastewater	14 Jul 2015	7.48	643	7.02	16.8

Table S7

Nutrients and dissolved organic carbon in all sampling events.

Site	Sample point	NO_2^- (mg N/L)	NO_3^- (mg N/L)	TKN (mg N/L)	TN (mg N/L)	DOC (mg C/L)	TP (mg/L)	SO_4^{2-} (mg/L)
				Sampling Event 1 (Summer or Wet Season)				
WWTP 1	Influent Wastewater	0.01	0.02	95.0	95	52	12	14
	Post-combined Pond	0.2	0.03	60.8	61	8.5	11	32
	Treated Wastewater	0.07	0.08	20.9	21	11	11	35
WWTP 2	Influent Wastewater	0.09	0.02	42.9	43	24	14	59
	Treated Wastewater	0.08	0.02	64.9	65	22	18	63
WWTP 3	Influent Wastewater	<0.1	0.07	99.9	100	41	14	<1
	Post- facultative pond	<0.1	0.30	71.7	72	27	12	23
	Treated Wastewater	0.50	1.00	58.5	60	22	13	22
WWTP 4	Influent Wastewater	<0.1	0.08	99.9	100	25	13	28
	Treated Wastewater	0.20	3.10	0	3.2	6.4	5.1	33
				Sampling Event 2 (Winter or Dry Season)				
WWTP 1	Influent Wastewater	0.01	<0.01	46.0	46	80	8.5	25
	Post-combined Pond	<0.01	<0.01	49.0	49	13	1.8	41
	Treated Wastewater	0.01	<0.01	33.0	33	20	9.8	44
WWTP 2	Influent Wastewater	<0.01	<0.01	46.0	46	16	7.7	57
	Treated Wastewater	0.04	0.01	46.0	46	17	2.7	57
WWTP 3	Influent Wastewater	0.02	<0.01	54.0	54	33	8.1	28
	Post- facultative pond	0.06	<0.01	46.9	47	20	5.8	1
	Treated Wastewater	<0.01	<0.01	40.0	40	21	5.9	21
WWTP 4	Influent Wastewater	<0.01	<0.01	79.0	79	33	8.3	21
	Treated Wastewater	0.11	0.93	1.5	2.5	7	4.2	34

Table S8
Influent percentage detection, plus median, maximum and minimum concentrations of all micropollutants detected at least once in wastewater influent.

Chemical	Minimum	Maximum	Median	Percentage Detection
Pesticides, including metabolites (μg/L)				
N, *N*-Diethyl-*m*-toluamide (DEET)	0.4	32	1.6	100%
3,4-Dichloroaniline	<0.01	0.5	<0.01	25%
Triclosan methyl ether	<0.1	11	<0.1	13%
Triclosan	<0.1	8.3	3.9	88%
4-Chloro-3,5-dimethylphenol	0.1	13	3.2	100%
Piperonyl butoxide	0.1	3.6	1	100%
Permethrin	<0.1	0.8	1.6	100%
Others (μg/L)				
N-Butylbenzenesulfonamide	<0.1	1.5	0.1	63%
2,6-Di-*t*-butyl-*p*-cresol (BHT)	<0.1	1.4	0.9	75%
Tris(dichloropropyl) phosphate	<0.1	1.1	<0.1	38%
Tris(chloroethyl) phosphate	<0.1	0.3	<0.1	25%
Tris(chloropropyl) phosphate isomers	0.7	12	2.0	100%
Triethyl phosphate	<0.1	0.2	8.8	100%
Galaxolide	0.6	13	0.5	75%
Tonalide	<0.1	1.2	<0.1	13%
Tri-n-butyl phosphate	<0.1	1	0.9	75%
Pharmaceuticals (ng/L)				
Morphine	<100	4692	1774	88%
Paracetamol	<125	1971	<125	13%
Phenytoin	<55	4292	504	50%
Carbamazepine	1568	49420	6010	100%
Atorvastatin	760	41850	10436	100%
Cotinine	454	44710	22886	100%
Warfarin	200	9640	371	100%
Naproxen	1228	122416	10886	100%
Ibuprofen	<10	79761	15309	75%
Gemfibrozil	<5	2442	702	88%
Antibiotics (ng/L)				
Azithromycin	<50	474	<50	25%
Clindamycin	<25	166	<25	25%
Roxithromycin	<30	320	<30	13%
Sulfamethozaxole	<50	4912	593	75%
Trimethoprim	80	2104	373	88%
Benzotriazoles and Benzothiazoles (ng/L)				
2-Aminobenzothiazole (2-ABTh)	<2	25	<2	25%
Benzotriazole (BT)	476	5110	1164	100%

Chemical	Minimum	Maximum	Median	Percentage Detection
4+5-Methyl benzotriazole (4+5-MeBT)	390	4300	1744	100%
5,6-DiMethyl benzotriazole (5,6-DiMeBT)	<15	28	<15	13%
Artificial Sweeteners (µg/L)				
Sucralose	27807	46896	40340	100%

Table S9
Effluent percentage detection, plus median, maximum and minimum concentrations of all micropollutants detected at least once in wastewater effluent.

Chemical	Minimum	Maximum	Median	Percentage Detection
Pesticides including metabolites (µg/L)				
N, *N*-Diethyl-*m*-toluamide (DEET)	<0.1	32	<0.1	50%
3,4-Dichloroaniline	<0.01	0.5	<0.01	13%
Thiabendazole	<0.1	11	<0.1	13%
Triclosan	<0.1	8.3	<0.1	50%
4-Chloro-3,5-dimethylphenol	<0.1	13	n.a.	25%
Piperonyl butoxide	<0.1	3.6	n.a.	50%
Others (µg/L)				
N-Butylbenzenesulfonamide	<0.1	1.5	<0.1	50%
2,6-Di-*t*-butyl-*p*-cresol (BHT)	<0.1	0.1	<0.1	13%
Tris(dichloropropyl) phosphate	<0.1	0.9	0.2	88%
Tris(chloroethyl) phosphate	<0.1	0.3	0.2	63%
Tris(chloropropyl) phosphate isomers	0.4	2.1	1.2	100%
Galaxolide	<0.1	2.3	1.1	88%
Tonalid	<0.1	0.4	<0.1	38%
Pharmaceuticals (ng/L)				
Morphine	<100	3052	<100	38%
Phenytoin	<55	4425	1052	63%
Carbamazepine	1100	49332	8584	88%
Atorvastatin	<25	7433	506	63%
Cotinine	<50	19779	235	63%
Warfarin	<15	636	336	63%
Naproxen	<10	18226	389	88%
Clofibric Acid	<15	29	<15	25%
Ibuprofen	<10	26577	114	63%
Gemfibrozil	11	7121	296	100%
Antibiotics (ng/L)				
Azythromycin	<50	572	<50	25%
Clindamycin	<25	46	<25	25%
Roxithromycin	<30	220	<30	38%
Sulfamethozaxole	<50	345	<50	50%
Trimethoprim	<50	352	170	63%
Benzotriazoles and Benzothiazoles (ng/L)				
2-Aminobenzothiazole (2-ABTh)	<9	17.6	<9	25%
Benzotriazole (BT)	273	5072	1060	100%
4+5-Methyl benzotriazole (4+5-MeBT)	835	3050	1506	100%
5,6-DiMethyl benzotriazole (5,6-DiMeBT)	<15	32	<15	25%
Artificial Sweeteners (µg/L)				
Sucralose	23374	52856	38339	100%

Table S10

Calculated percentage removal for detected micropollutants, DOC and TN in the four WWTPs studied. WWTP 1-3 are WSPs, while WWTP 4 is an oxidation ditch. WWTP 1 is in a tropical region and was sampled in the wet and dry seasons, while WWTPs 2-4 are located in temperate regions with distinct summer and winter seasons. In some instances, micropollutant was reduced to below detection after treatment. In these cases, a value equal to half the limit of reporting was used as a conservative estimate of the final concentration. In most cases, a negative removal indicates the chemical was not detected in wastewater influent, but was present at low concentrations in wastewater effluent.

	Event 1 - Summer/Wet Season				Event 2 – Winter/Dry Season			
	WWTP				WWTP			
Chemical	1	2	3	4	1	2	3	4
Median Micropolluant Removal	94%	19%	82%	91%	93%	0%	35%	75%
DOC Removal	79%	7%	46%	75%	75%	-3%	36%	77%
TN Removal	78%	-51%	40%	97%	28%	0%	26%	97%
Pesticides including metabolites and related compounds								
DEET	99%	-25%[b]	62%	98%	100%	50%	-6%	96%
3,4-Dichloroaniline	ND	ND	99%	90%	ND	ND	ND	-100%
Thiabendazole	ND	ND	-100%	ND	ND	ND	ND	ND
Triclosan methyl ether	ND	ND	ND	ND	100%	ND	ND	ND
Triclosan	99%	50%	95%	99%	ND	0%	89%	99%
4-Chloro-3,5-dimethylphenol	98%	0%	97%	99%	100%	50%	66%	99%
Piperonyl butoxide	95%	50%	90%	95%	97%	0%	92%	83%
Permethrin	94%	ND	ND	ND	92%	ND	ND	ND
Pharmaceuticals								

Morphine	90%	ND	82%	NA	97%	-3%	35%	99%
Paracetamol	97%	ND	ND	NA	ND	ND	ND	ND
Phenytoin	-14%	ND	42%	ND		ND	42%	-23%
Carbamazepine	66%	19%	20%	NA	-684%	0.2%	33%	-41%
Atorvastatin	100%	33%	100%	NA	99%	4%	74%	95%
Cotinine	96%	99%	100%	NA	99%	48%	41%	99%
Warfarin	98%	-8%	98%	96%	5%	33%	97%	25%
Naproxen	100%	66%	93%	99%	100%	21%	73%	100%
Clofibric Acid	ND	ND	ND	ND	-287%	32%	-100%	ND
Ibuprofen	99%	31%	99%	99%	ND	ND	60%	100%
Gemfibrozil	-7%	3%	-420%	99%	-972%	-4%	-900%	91%
Antibiotics								
Azithromycin	ND	52%	ND	ND	ND	ND	-2188%	89%
Clindamycin	ND	ND	ND	ND	-60%	0%	92%	-156%
Roxithromycin	ND	ND	ND	ND	ND	-207%	-1367%	90%
Sulfamethoxazole	98%	ND	91%	93%	97%	ND	-366%	56%
Trimethoprim	98%	-19%	36%	NA	95%	ND	-340%	72%
Benzotriazoles and benzothiazoles								
2-Aminobenzothiazole (2-ABTh)	ND	75%	-1660%	81%	ND	ND	ND	ND
Benzotriazole (BT)	81%	19%	-49%	2%	43%	1%	-110%	0%
4+5-Methyl Benzotriazole (4+5-MeBT)	-114%	12%	46%	61%	-7%	-9%	29%	-12%
5,6-Dimethyl Benzotriazole (5,6-DiMeBT)	-327%	-153%	ND	ND	ND	73%	ND	ND

Artificial Sweeteners								
Sucralose	26%	6%	20%	21%	-41%	-5%	-12%	-13%
Plasticizers, antioxidants, flame retardants and fragrances								
N-Butylbenzenesulfonamide	-500%	0%	-100%	97%	50%	50%	-100%	75%
2,6-Di-*t*-butyl-*p*-cresol (BHT)	96%	ND	92%	94%	94%	ND	90%	94%
Tris(dichloropropyl) phosphate	50%	0%	-1700%	-100%	73%	-300%	ND	-100%
Tris(chloroethyl) phosphate	-300%	33%	ND	-300%	50%	-300%	ND	-500%
Tris(chloropropyl) phosphate isomers	74%	-6%	64%	67%	65%	0%	83%	14%
Triethyl phosphate	ND	ND	ND	75%	ND	ND	ND	ND
Galaxolide	99%	33%	86%	75%	98%	40%	82%	85%
Tonalide	90%	ND	95%	91%	ND	83%	67%	50%
Tri-*n*-butyl phosphate	ND	ND	ND	ND	95%	ND	ND	ND

Table S11

Literature values for the octanol-water partion coefficient, log K_{OW},[6] the equilibrium partition coefficient for sorption onto activate sludge, $K_{d\text{-}AS}$ (L kg^{-1}), and pseudo first order rate constants for biological degradation in an activated sludge WWTP, $k_{biol\text{-}AS}$ (L g^{-1} day^{-1}).

	Log K_{OW}	$K_{d\text{-}AS}$ (L kg^{-1})	$k_{biol\text{-}AS}$ (L g^{-1} day^{-1})
	>75% Removal		
Ibuprofen	3.97	<30[a,b], 170 ± 250[c]	40.3-50.2[c], 3.24–4.01[h], 20[i], ~1.5[j], 21-35[p]
Naproxen	3.18	<30[a], 120 ± 180[c], 36[d]	25.0-29.3[c], 0.39–0.93[h], 9[i], 0.2[j], 1-1.9[p]
Cotinine	0.07	34[c]	16.6-17.5[c], 0.993-3.575[k]
Triclosan	4.76	2500 ± 1500[c]	1.2-3.6[c]
Morphine	0.89	12 ± 2[c]	13.5 ± 3.4[l]
4-Chloro-3,5-dimethylphenol	3.27		1.8[m]
Atorvastatin	6.36	198 ± 69[a], 390[e]	1.22[e]
2,6-Di-*t*-butyl-*p*-cresol	5.10		
Piperonyl butoxide	4.75		
Galaxolide	5.90	4920 ± 2080[b]	170[i], 150[j], <0.03[n], <0.1[q]
Sulfamethoxazole	0.89	30[a, c], 11[d]	<0.48[c], 0.184-0.925[k] 0.3[i], n.d.[j], ~0.1[q]
	Variable Removal		
DEET	2.0	42[a]	
Gemfibrozil	3.4	< 50[a, c]	0-1.44[c], 1.01–1.84[h], 6.4-9.6[p]
N-Butylbenzenesulfonamide	2.1		
Trimethoprim	0.91	119 ± 49[a], 4 ± 6[c]	<0.24[c], 0.062-0.190[k], 0.15[i], 0.22[o]
Tonalide	5.70	5300 ± 1900[b]	115[i], 60[j]
Warfarin	2.70	27[d]	
Tris(chloropropyl) phosphate isomers	2.59 for tris(1-chloro-2-propyl) phosphate		
	Low < 25% Removal		
Carbamazepine	2.45	50 ± 1[a], 43[d]	<0[c], 0.07–0.14[h], <0.06[i], <0.03[j], <0.1[l]
Benzotriazole	1.44	220 ± 9[f]	0.21-0.41[f]
4+5-Methyl Benzotriazole	1.71	165 ± 14 for 5-methyl benzotriazole[f], 70 ± 48 for 4-methyl benzotriazole[f]	could not be determined due to low removal[f]
Sucralose	-1.0	5.1[g]	0.001-0.352[k]

Key: a[7]; b[8]; c[9]; d[10]; e[11]; f[12]; g[13]; h for nitrifying activated sludge [14]; i for aerobic sludge [15]; j for anaerobic sludge [15]; k[16]; l[17]; m[18]; n[19]; o[20]; p[21]

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