

Supporting Information

Effect of sewage sludge type on the partitioning behaviour of pharmaceuticals: a meta-analysis

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Table S1 Partition coefficients (K_d) reported in the literature for active pharmaceutical ingredients with different types of sewage sludge.

Compound	K_d activated	K_d primary	K_d secondary	K_d digested
Acetaminophen	30.0 ¹ 1,160.0 ²	6.7 ² 30.0 ¹	-	-
Alfuzosin	-	1800.0 ³	1200.0 ³	-
Amitriptyline	4,555.0 ¹	4,100 ³ 5,694 ¹	740.0 ³ 9,300.0 ⁴	1,049.0 ⁵
Androstenedione	156.0 ¹	174.0 ¹	-	-
Androsterone	579.0 ¹	534.0 ¹	-	-
Atenolol	30.0 ¹ 38.0 ⁶ 64.0 ²	46.0 ¹ 95.0 ² 460.0 ³	2,800.0 ³	11.0 ⁵
Atorvastatin	198.0 ¹	216.0 ¹	-	-
Atracurium	-	350.0 ³	1,600.0 ³	-
Azelastine	-	6,400.0 ³	470.0 ³	-
Biperiden	-	820.0 ³	750.0 ³	-
Bisoprolol	40.0 ⁶	-	110.0 ³	-
Bupropion	-	85.0 ³	140.0 ³	-
Caffeine	30.0 ¹	30.0 ¹	-	14.0 ⁵
Carbamazapine	1.0 ⁸ 17.1 ⁶	20.0 ⁸ 65.0 ¹	1.2 ¹⁰	35.4 ¹⁰ 40.0 ⁸

	50.0 ¹ 66.0 ⁷ 135.0 ²	314.0 ²	240.0 ⁴	43.0 ⁵
Chlorprothixene	-	38,000.0 ³	20,000.0 ³	-
Citalopram	-	540.0 ³	210.0 ³ 4,000.0 ⁴	282.0 ⁵
Clofibric Acid	25.5 ⁷	-	4.8 ¹⁰	5.0 ⁵
Clomipramine	-	17,000.0 ³	6,700.0 ³	-
Clotrimazol	-	32,000.0 ³	34,000.0 ³	8,128.0 ⁵
Clozapine	1,642.0 ¹	1,730.0 ¹	-	-
Cyclophosphamide	-	55.0 ¹⁰	2.4 ¹⁰	-
Cyproheptadine	-	11,000.0 ³	3,600.0 ³	-
Desloratadine	-	3,700.0 ³	2,900.0 ³	-
Diazepam	20.0 ⁸ 53.0 ⁶ 53.1 ⁶ 241.0 ¹	40.0 ⁸ 44.0 ¹⁰ 291.0 ¹	21.0 ¹⁰	-
Diclofenac	16.0 ⁸ 32.0 ⁷ 118.0 ²	194.0 ² 459.0 ¹⁰ 501.0 ⁸	16.0 ¹⁰	50.0 ⁸ 105.0 ⁵
Dicycloverine	-	1,400.0 ³	1,700.0 ³	-
Dilantin	81.0 ¹	45.0 ¹	-	-
Donepezil	-	3,600.0 ³	970.0 ³	-
Duloxetine	-	13,000.0 ³	2,900.0 ³	-
Erythromycin	74.0 ² 158.0 ⁸	309.0 ²	-	190.0 ⁵
Estradiol (E2)	398.0 ⁸ 476.0 ¹¹ 771.0 ¹ 1506.0 ⁷	560.0 ¹	-	199.5 ¹² 251.0 ⁸ 676.1 ¹²
Estriol	63.0 ¹	58.0 ¹	-	-
Estrone (E1)	203.0 ⁷ 402.0 ¹¹ 447.0 ⁸ 645.0 ¹	636.0 ¹	-	151.4 ¹² 316.0 ⁸ 588.8 ¹²
Ethinylestradiol (EE2)	447.0 ⁸ 471.5 ⁷ 584.0 ¹¹	251 ⁸ 278 ¹⁰ 1017 ¹	349.0 ¹⁰	120.2 ¹² 707.9 ¹²

	1550.0 ¹			
Ezetimibe	-	2,300.0 ³	3,000.0 ³	-
Fexofenadine	-	2,700.0 ³	360.0 ³	-
Fluoxetine	-	10,000.0 ³	6,000 ³ 8,800 ⁴	-
Flutamide	-	1,500.0 ³	750.0 ³	-
Gemfibrozil	19.3 ² 45.0 ¹ 100.0 ⁷	23.0 ² 45.0 ¹	-	-
Glibenclamide	239.0 ²	282.0 ² 3,600.0 ³	1,300.0 ³	-
Glimepiride	-	2,100.0 ³	960.0 ³	-
Haloperidol	-	10,000.0 ³	2,900.0 ³	-
Hydrochlorothiazide	20.2 ²	25.8 ²	-	-
Hydroxyzine	819.0 ¹	778.0 ¹ 1200.0 ³	720.0 ³	-
Ibuprofen	8.0 ⁸ 80.0 ⁷ 251.0 ¹³	9.5 ² 20.0 ⁸	7.1 ¹⁰ 360.0 ³	25.0 ⁸ 37.8 ¹⁰
Ifosfamide	-	22.0 ¹⁰	1.4 ¹⁰	-
Indomethacin	39.0 ⁷	-	-	214.0 ⁵
Iopromide	10.0 ⁸	10.0 ⁹	11.0 ¹⁰	6.9 ¹⁰ 13.0 ⁸
Irbesartan	-	700.0 ³	940.0 ³	-
Ketoconazole	-	9,700.0 ³	8,500.0 ³	-
Ketoprofen	16.0 ² 29.0 ⁷	226.0 ²	-	-
Loperamide	-	14,000.0 ³	5,500.0 ³	-
Loratidine	3,321.0 ²	2,336.0 ²	-	-
Maprotiline	-	6,700.0 ³	4,500.0 ³	-
Mefenamic acid	434.0 ²	294.0 ²	-	-
Meprobamate	30.0 ¹	42.0 ¹	-	-
Metoprolol	65.0 ⁶	-	-	18.0 ⁵
Mianserin	-	3,000.0 ³	910.0 ³	-

Naproxen	24.0 ⁷	217.0 ⁹	217.0 ⁹	29.0 ^{5,8}
Nefazodone	-	14,000.0 ³	8,300.0 ³	-
Nortriptyline	-	-	6,200.0 ¹¹	600.0 ⁵
Omeprazole	107.0 ¹	130.0 ¹	-	-
Oxazepam	13.0 ⁶	790.0 ³	1,100.0 ³	-
Paroxetine	-	14,000.0 ³	8,300 ³ 15,000 ⁴	-
Phenylphenol	347.0 ¹	652.0 ¹	-	-
Pizotifen	-	4,700.0 ³	3,100.0 ³	-
Primidone	7.0 ⁶ 30.0 ¹	45.0 ¹	-	-
Progesterone	-	750.0 ³	1,100.0 ³	-
Propranolol	343.0 ⁶ 366.0 ²	641.0 ²	-	331.0 ⁵
Repaglinide	-	170.0 ³	210.0 ³	-
Risperidone	861.0 ¹	1,432.0 ³	650.0 ³	-
Roxithromycin	282.0 ⁸	400.0 ⁹	170.0 ⁹	13.8 ¹² 50.0 ⁸ 83.2 ¹²
Sertraline	-	35,000.0 ³	17,000.0 ³ 31,000.0 ⁴	1,883.0 ⁵
Sotalol	18.0 ⁶	-	360.0 ³	-
Sulfamethoxazole	77.0 ² 256.0 ¹⁴ 282.0 ⁸	3.2 ² 320 ³	370 ³	5.9 ¹² 11.0 ⁵ 20.0 ⁸ 61.7 ¹²
Testosterone	157.0 ¹	178.0 ¹	-	-
Tramadol	447.0 ⁶	110.0 ³	190.0 ³	-
Trimethoprim	119.0 ¹ 200.0 ⁸ 208.0 ¹⁴ 253.0 ²	251.0 ¹ 390.0 ³ 427.0 ²	420.0 ³	68.0 ⁵
Verapamil	1,501.0 ¹	1,644.0 ¹ 1,800.0 ³	400.0 ³	-

¹Stevens-Garmon et al. 2011 ⁶Wick et al. 2009

²Radjenovic et al. 2009

⁷Uruse and Kikuta 2005

¹¹Andersen et al. 2005

¹²Carballa et al. 2008

³Horsing et al. 2011

⁸Suarez et al. 2008

¹³Stuer-Laurdisen et al. 2000

⁴Lajeunesse et al. 2012

⁹Joss et al. 2005

¹⁴Gobel et al. 2005

⁵Barron et al. 2009

¹⁰Ternes et al. 2004