Active Pharmaceutical Ingredient Discharge Concentration Targets

The table below provides an overview of the Active Pharmaceutical Ingredient (API) discharge concentration targets for AstraZeneca's medicines. These are provided for discharges entering freshwater and marine environments, depending on where the API manufacturing or formulation site discharges.

The approach of our Safe API discharge programme is based on established environmental quality standards and considers indirect exposure of fish-eating mammals and humans, as well as pharmaceutical impacts on aquatic wildlife (e.g., algae, invertebrates and fish). These values must not be exceeded in the waters downstream of our pharmaceutical production sites. The lowest of the two safe discharge concentrations for each pharmaceutical; one for long-term exposure called an Environmental Reference Concentration (ERC) and one for short-term exposure called a Maximum Tolerable Concentration (MTC) are provided for both freshwater and marine sites.

Active Pharmaceutical Ingredient (API)	Lowest ERC for discharges to freshwater (µg/L)	Lowest MTC for discharges to freshwater (µg/L)	Lowest ERC for discharges to salt water [marine] (µg/L)	Lowest MTC for discharges to salt water [marine] (µg/L)
API with generic value[1]	0.1	0.1	0.1	0.1
Acalabrutinib	5.12	51.2	0.51	5.1
Albuterol (salbutamol)	33.3	2.09	16.6	2.09
Allopurinol	14	14	1.4	14
Anastrozole	0.17	0.17	0.1	0.17
Atenolol	148	211	14.8	33.4
Bambuterol hydrochloride	71	140	7.1	71
Bicalutamide	1	2.5	0.1	1
Budesonide	0.09	0.17	0.009	0.09
Bupivacaine hydrochloride monohydrate	12	12	3.9	12
Candesartan	14	14	10	10
Candesartan cilexetil	12	14.8	1.2	12
Cediranib maleate	0.032	0.8	0.0032	0.3
Ceftaroline fosamil acetate	0.61	0.61	0.061	0.061
Ceftazidime pentahydrate	1.3	1.3	0.13	0.13
Chlorthalidone	69.6	106	8	80
Clomethiazole edisilate	62	620	6.2	62
Dapagliflozin	4.2	4.2	4.2	4.2
Esomeprazole sodium	33	115	10	41.9
Felodipine	0.005	0.5	0.0005	0.05
Formoterol fumarate dihydrate	0.006	0.16	0.006	0.16
Fulvestrant	0.00057	0.0057	0.000057	0.00057
Gefitinib	1.3	31	0.13	3.1
Hydrochlorothiazide	180	180	20	34
Isosorbide-5-mononitrate	70	70	12	70
Lesinurad	200	211	20	120
Lidocaine hydrochloride monohydrate	79	79	11	79
Lisinopril dihydrate	8.4	8.4	8.4	8.4
Mepivacaine hydrochloride	59	140	5.9	59
Meropenum	1.1	1.5	0.15	0.15
Metformin hydrochloride	1000	1300	100	130
Metoprolol succinate	7.3	73	0.73	7.3
Naloxegol	200	211	20	120

[1] A generic ERC value of 0.1µg/L is assigned as a >95% risk inclusive value where no ecotoxicity testing has been completed or data availability is limited. The following APIs are assigned a generic ERC value: aclidinium bromide, capivasertib, fentanyl, glycopyrronium, savolitinib.

Active Pharmaceutical Ingredient (API)	Lowest ERC for discharges to freshwater (µg/L)	Lowest MTC for discharges to freshwater (µg/L)	Lowest ERC for discharges to salt water [marine] (µg/L)	Lowest MTC for discharges to salt water [marine] (µg/L)
Naproxen	4.2	270	0.42	27
Olaparib	0.24	0.42	0.024	0.042
Omeprazole sodium	33	115	10	41.9
Osimertinib mesylate	0.075	0.75	0.0075	0.075
Prilocaine hydrochloride	3.2	3.2	3.2	3.2
Propofol	0.37	3.7	0.037	0.37
Propranolol hydrochloride	0.23	5.2	0.023	0.52
Quetiapine fumarate	10	84	1	19.3
Ramipril	3.3	3.3	3.3	3.3
Roflumilast	0.084	0.28	0.0084	0.084
Ropivacaine hydrochloride monohydrate	26.1	340	3.4	34
Rosuvastatin calcium	1.8	14	0.18	14
Saxagliptin	4	14	0.4	14
Selumetinib hydrogen sulfate	4.4	20	4.2	4.9
Tamoxifen citrate	0.102	0.102	0.0102	0.0102
Terbutaline sulphate	3.53	3.53	3.53	3.53
Ticagrelor	36.6	36.6	5.3	5.3
Vandetanib	0.67	3	0.067	0.3
Zafirlukast	12.8	37	1.28	3.7
Zolmitriptan	2.1	2.1	2.1	2.1

For more information on our Safe API discharge programme, visit our Pharmaceuticals in the Environment (PIE) page: https://www.astrazeneca.com/sustainability/environmental-protection/pharmaceuticals-in-the-environment.html

Last updated: February 2024