

Removal of micropollutants in the Uhldingen-Mühlhofen WWTP

Specifications of the plant:

Treatment capacity	[PE]	66,000
Load	[PE]	80,000
Inflow volumes:		
▪ Dry weather flow	[l/s]	153
▪ Max. wet weather flow	[l/s]	420
▪ Annual wastewater volume	[m³/a]	5,700,000



Process technology:

Mechanical treatment	Fine screen, sand and grease trap, primary clarifier
Biological treatment	Pre-denitrification, nitrification, 2 lanes, secondary clarifier
Chemical treatment	Phosphate precipitation: simultaneous and post
Elimination of micropollutants	Ozonation with downstream GAC -filter
Filter	Continuous upflow GAC -filter



ZV. Abwasserbeseitigung
Überlinger See
Multscheeren 1,
88690 Uhldingen-Mühlhofen

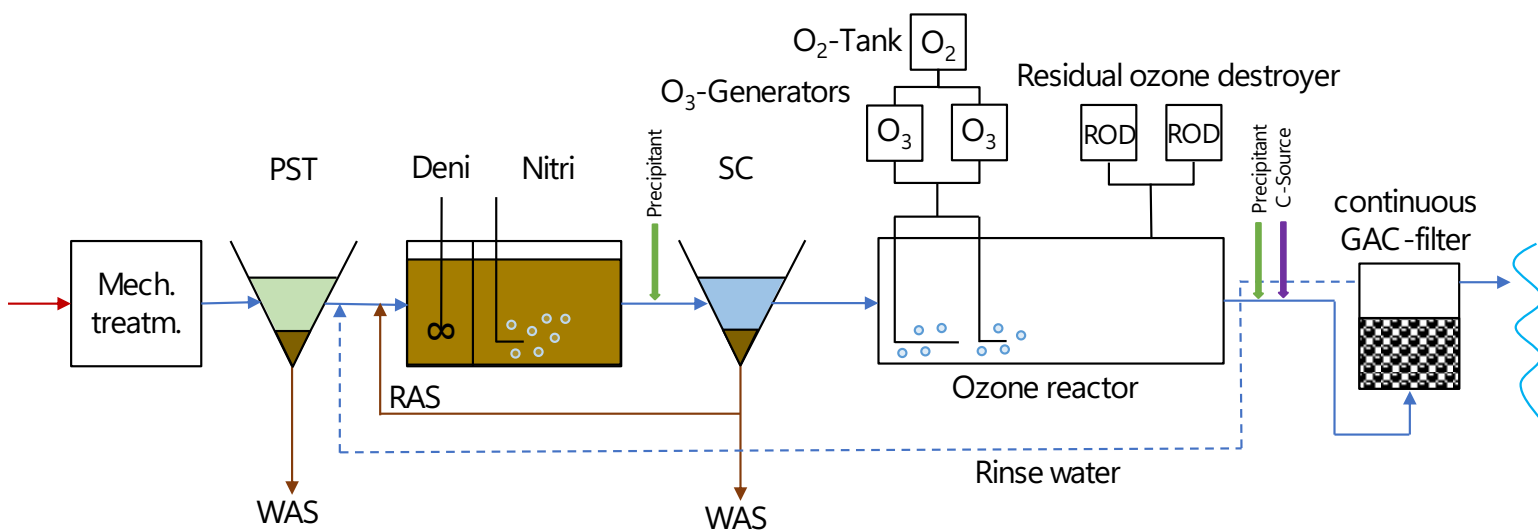


Fig. 1: Process diagram of the Überlinger See wastewater treatment plant

Design of the ozone/GAC stage:

Year of commissioning of the advanced treatment stage					2023
Max. treatable volumetric flow rate	[L/s]	230	Max. ozone production	[kg O ₃ /h]	6.7
Contact reactor			Filter		
▪ Volume	[m³]	356	▪ Number of filter cells		24
▪ Retention time at Q _{DW}	[min]	39	▪ Total filter area	[m²]	120
▪ Retention time at Q _{max}	[min]	26	▪ Total filter volume	[m³]	320
▪ Water depth	[m]	8	▪ Max. filter velocity	[m/h]	7
▪ Typical ozone dose	[mg/l]	3.0	▪ Max. inflow filter	[l/s]	230
▪ Injection system	Diffusers		▪ Min. empty bed contact time	[min]	>23