

# Removal of micropollutants in the Darmsheim wastewater treatment plant

## Specification of the plant:

|                            |        |         |
|----------------------------|--------|---------|
| Treatment capacity         | [PE]   | 13,800  |
| Load                       | [PE]   | 11,849  |
| Inflow volumes:            |        |         |
| ▪ Dry weather flow         | [l/s]  | 17.4    |
| ▪ Max. wet weather flow    | [l/s]  | 110     |
| ▪ Annual wastewater volume | [m³/a] | 907,369 |



## Process technology:

|                                |                                                           |
|--------------------------------|-----------------------------------------------------------|
| Mechanical treatment:          | Fine screen, sand and grease trap, primary clarifier      |
| Biological treatment           | Bio-P, Pre-denitrification, nitrification, intermittently |
| Chemical treatment             | Phosphate precipitation: simultaneous                     |
| Elimination of micropollutants | Granular activated carbon filter (GAC), pressure vessel   |
| Filter                         | Multi-layer sand filter                                   |



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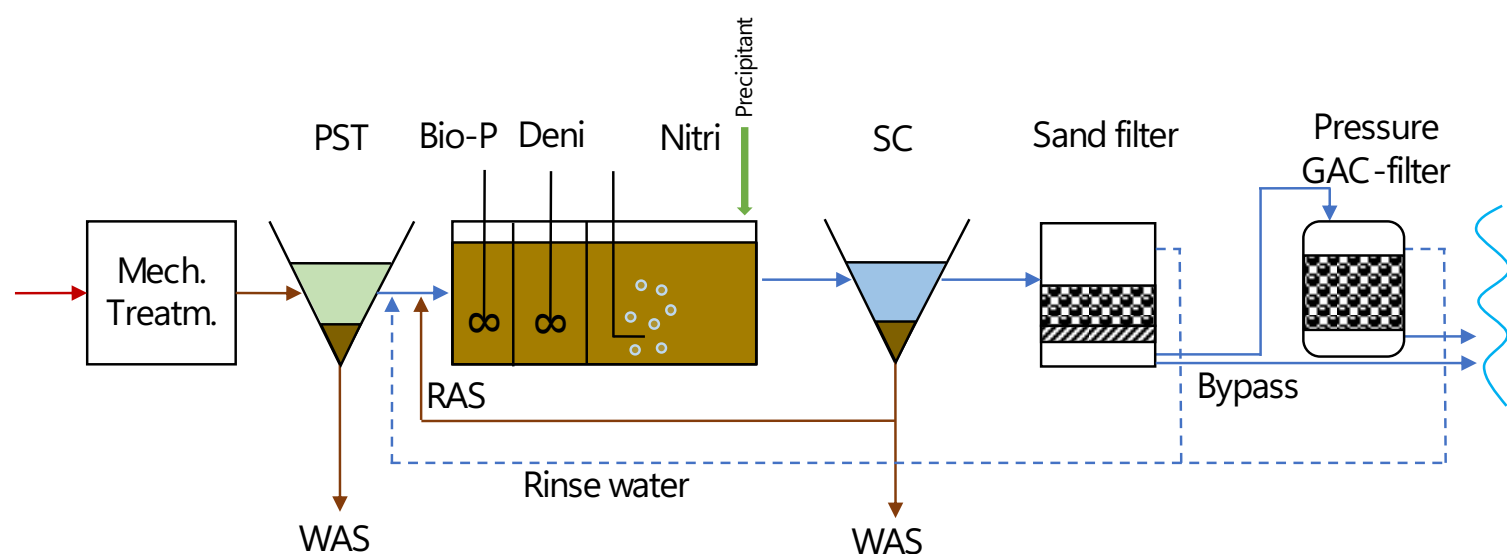


Fig. 1: Process diagram of the Darmsheim wastewater treatment plant

## Design of micropollutant removal:

|                                                       |                    |      |
|-------------------------------------------------------|--------------------|------|
| Year of commissioning of the advanced treatment stage | 2020               |      |
| Activated carbon filter                               |                    |      |
| ▪ Max. treatable volume                               | [l/s]              | 60   |
| ▪ Number of filter cells/vessels                      | 3 (4th as reserve) |      |
| ▪ Total surface area of the filter cells              | [m²]               | 14.7 |
| ▪ Total volume of the filter cells                    | [m³]               | 72   |
| ▪ Volume of the activated carbon bed per cell         | [m³]               | 15   |
| ▪ Surface area of the activated carbon bed per cell   | [m²]               | 4.9  |
| ▪ Max. filter velocity                                | [m/h]              | 14.7 |
| ▪ Min. empty bed contact time (EBCT)                  | [min]              | 12   |