



Innovative solutions for
biological wastewater
treatment.



Riumar WWTP

Case study

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Riumar WWTP

Problem identified

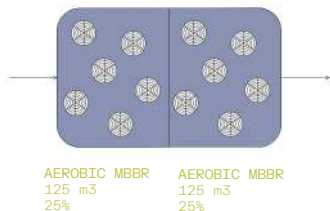
- Construction of a new WWTP for the town of Riumar (Tarragona, Spain), where the existing facility lacks secondary wastewater treatment and the effluent is discharged directly into the Ebro River.
- This is a WWTP with great seasonal variability, multiplying the flow x 4 and the load x 8 in summer, having to control, in addition, the over-generation of nitrates due to heat in order to meet the requirements of suspended solids.

INFLUENT WATER

Average flow	850 m ³ /d
Peak flow	1700 m ³ /d
SS	350 mg/l
Soluble biodegradable COD	740 mg/l
BOD5	300 mg/l
TKN	70 mg/l

Executed solution

- Pure MBBR technology without sludge recirculation.
- Configuration: Two aerobic reactors in series.
- In the first aerobic reactor most of the soluble biodegradable COD is removed, while in the second reactor the remaining soluble COD is removed.
- MOBED®-35 filling rate: 25% in each reactor.
- Minimization of over-nitrification and reduction of energy consumption through media mixing with mixers and automatic ON-OFF control for intermittent aeration.



EFLUENT WATER

Flow	850 m ³ /día
COD	<125 mg/l
BOD5	<25 mg/l
SS at MBBR output	<35 mg/l
TN	-

Benefits of an MBBR

Higher treatment capacity

MBBR technology provides a supporting surface for the bacteria treating pollutants. MOBED® has the greatest surface in the market per cubic meter, boosting the treatment capacity of the process. When settling on the media, bacteria create a biofilm with a very high concentration (2-3 times higher than in suspension) to effectively remove pollutants in the wastewater with a concentration.

Robustness against load fluctuations

The moving bed is able to adapt better than conventional technologies to the variations that can occur in an industrial WWTP. This has to do with the higher concentration of bacteria and with the fact that, under normal dissolved oxygen conditions, some of these bacteria are not working at 100% capacity. By increasing the oxygen concentration, all the bacterias are activated, and this way, an effective treatment.

Smaller footprint

MBBR allows a higher percentage of contaminants to be removed (2-3 times) in the same space as conventional technologies. This allows to comply with treatment requirements without the need to enlarge tanks and without assuming high civil work costs, guaranteeing, at the same time, an effective and sustainable treatment, even in the most demanding cases of nitrogen and phosphorus removal.