

## Case Study - Malatech Bioaugmentation

### Municipal Wastewater Treatment Plant with winery wastewater load

$$Q = 1\,500 \text{ m}^3/\text{d}$$

**Goals of bioaugmentation:** The town is located in the hills loaded with vineyards. Wine production in low-scale is very popular in the area, and it has an adverse effect on the WWTP's performance. About 20% of the daily wastewater is coming from the wineries, especially in season. The WWTP itself is well-designed for municipal wastewater load, equipped with full nutrient (N,P) removal steps, but as a result of the industrial wastewater streams it is unable to handle cumulative COD load, and inhibitory or toxic substances. Nitrification is usually partial, or totally eliminated, COD, BOD and TSS in the effluent are also way higher than the authority limits. The goal of the operator was to significantly decrease or eliminate fines received by the authority for effluent parameter violations. Besides Bioclean TM, Ammonia Guard, and BioBooster Micro have also been applied because of the overload



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**Title:** Municipal Wastewater Treatment Plant Optimization

## Layout

Anaerobic – anoxic – aerobic WWTP without primary clarifier.

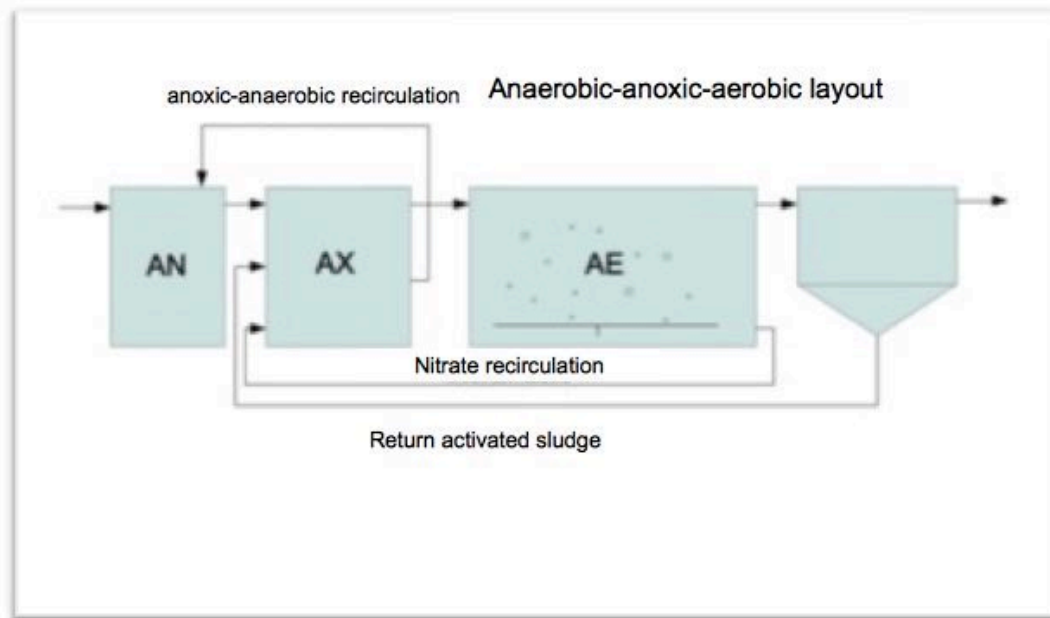


Figure 1 - Schematic diagram

### Application used:

In order to improve the treatment efficiency **Bioclean TM** has been applied in a shock dose of 6 kg/day in the first week subsequently reduced to 1 kg/day in 5 weeks which has remained the maintenance dosage.

Furthermore **BioBooster Micro** has been applied in a quantity of 1 kg/ day for 4 weeks and after that 0.5 kg/ day for 8 weeks.

Additionally 0.5 l/ day **Ammonia Guard** has been applied for 4 weeks.

### Main goals:

- 1) Effluent quality improvement because of continuous discharge limit violations (COD, BOD, NH<sub>4</sub><sup>+</sup>, TN, TP)
- 2) Increase the resistance of the activated sludge towards COD shock loads, and inhibitory or toxic substances, provide a more stable effluent quality with less fluctuations for the wine-making season.

## Effluent parameters

**Malatech Bioaugmentation has eliminated 95% of the fines. The wastewater treatment plant's operation has been stabilized, it shows fluctuations still in September, October, and November though when the load is extreme. In these months nitrification becomes partial, and TN rises as well, but nitrification never goes totally offline like before.**

Parameter	Average reference level (2009)	Average level during the treatment (2010-2011.)
COD (mg/l)	134,0	58,7
NH <sub>4</sub> -N (mg/l)	16,8	4,2
TP (mg/l)	2,4	2,9
TN (mg/l)	24,6	20,2

*Table 1 – Effluent water parameters*