



**Client**

Unicer, Portugal

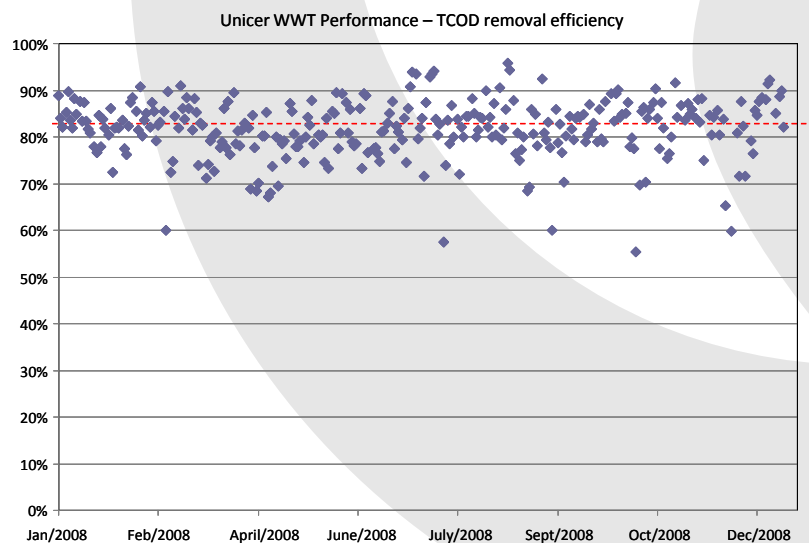
Unicer is the largest beer producer in Portugal and is located in Leça do Balio, close to the city of Porto. Due to the limited amount of space on the brewery's site, anaerobic treatment is a good solution for treatment of the wastewater. The anaerobic Biobed® EGSB reactor can treat up to 20 tons of COD and 13 tons of BOD per day, in a reactor with a surface area of only 110 m<sup>2</sup>.

*Raw Wastewater Characteristics (before pre-treatment)*

Flow	m <sup>3</sup> /d	6,000
COD load	kg/d	19,800
TSS	mg/l	1000
TKN	mg/l	80
Phosphorus (PO <sub>4</sub> )	mg/l	20
pH-value	-	6-13
Temperature	°C	23-25

*System features*

2x Buffer tank	m <sup>3</sup>	1230 (each)
Conditioning tank	m <sup>3</sup>	56
Biobed® EGSB	m <sup>3</sup>	1320
Post treatment	m <sup>3</sup>	existing



# Anaerobic Wastewater treatment Breweries industry

# BIOTHANE

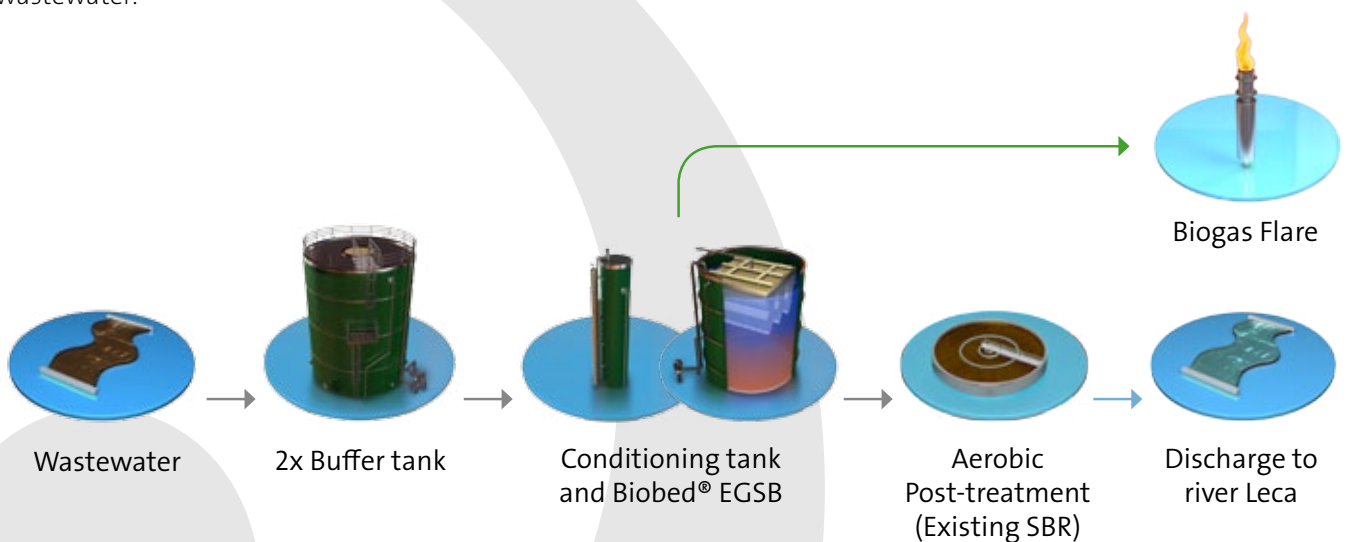


## Treatment Process

Wastewater arriving from the brewery is passing screens and a tilted plate separator (TPS) for removal of grains and kieselguhr. After this pre-treatment, the wastewater is stored in buffer tanks. The wastewater is fed to the Conditioning tank and the anaerobic Biobed® EGSB reactor in which most COD is converted into biogas. The wastewater is finally treated in an aerobic SBR (sequencing batch reactor) to remove residual BOD, COD and nutrients. With a final effluent concentration of TCOD < 150 ppm, the wastewater is discharged to the Leça river.

## Performance

Since its start-up in the summer of 2007, the Biobed® EGSB reactor removes on average 80% of TCOD from the wastewater.



## Some other Biothane References for Breweries

Sapporo Breweries Ltd	Japan	2001
KEO Brewery & Winery	Cyprus	2003
Tuborg	Turkey	2004
Asahi Breweries Ltd	Japan	2005
Oriental Brewery	South Korea	2006
Ursus Brewery	Romania	2007
Spendrups Brewery	Sweden	2007
Svijany Brewery	Czech Republic	2010

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