

# Anaerobic Wastewater treatment

## Biofuels industry

# BIOTHANE



### Client

Vivergo Hull, UK

Vivergo Fuels Ltd. was formed as a joint venture between major players in the fuel industry. The large scale bioethanol facility in Hull, UK produces 420 million liters of bioethanol and 500.000 tons of animal feed using wheat as a raw material each year. The production plant has a particularly small footprint. The plant will substantially contribute to the renewable transport fuel demand in the UK. Biothane supplied the anaerobic treatment process. The final effluent will be reused as process water in the production.

### Raw Wastewater Characteristics

Flow	m <sup>3</sup> /d	2,160
COD load	kg/d	9,720
BOD load	kg/d	6,480
VFA	kg/d	7,560
TSS	kg/d	0
pH	-	2.5 - 3.5
Temperature	°C	45 - 55

### System features

Conditioning tank	m <sup>3</sup>	19
Biobed® EGSB	m <sup>3</sup>	440

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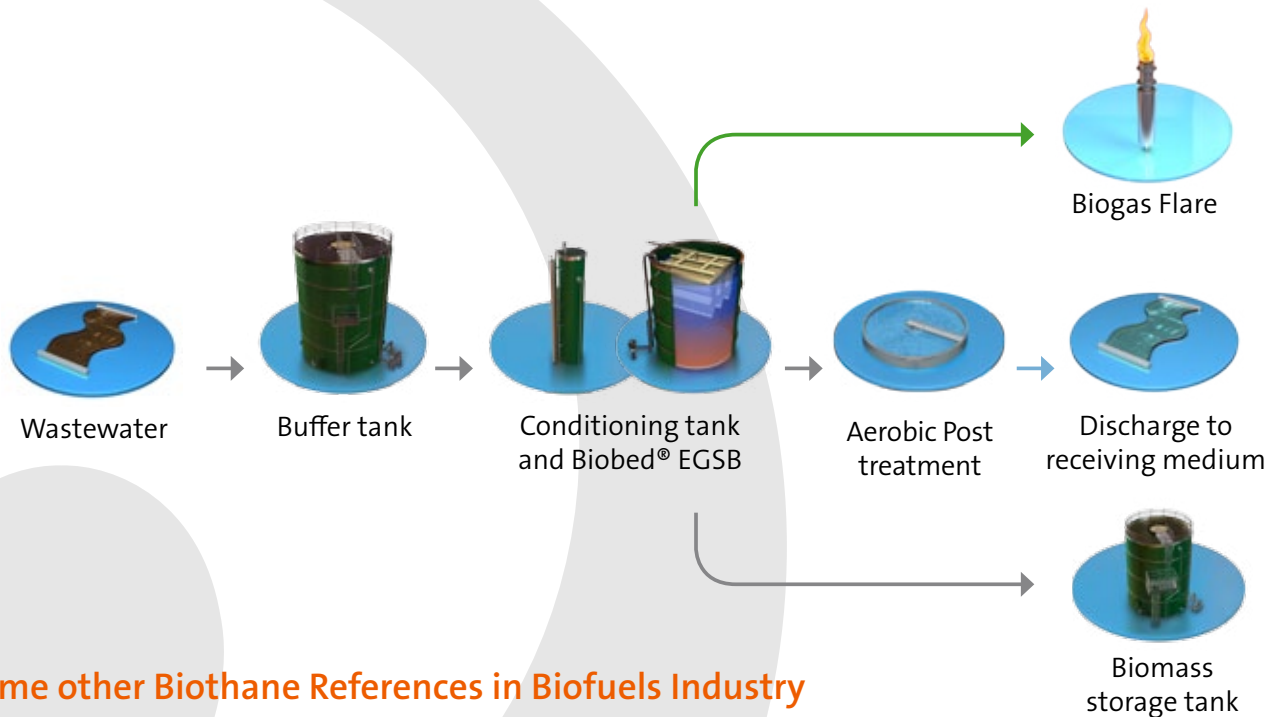
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## Treatment Process

The pretreated condensate is supplied to a Conditioning tank where optimal conditions for anaerobic treatment are provided (pH and temperature adjustment and nutrients addition). Anaerobic effluent is partly circulated back to the conditioning tank for dilution of the raw wastewater.

The anaerobic treatment takes place in a Biobed® EGSB reactor. The process condensate enters at the bottom of the reactor through a special influent distribution system. It thus passes a bed of granular biomass while rising to the settlers at the top of the reactor where biomass is separated from water and biogas. The COD design removal efficiency is 85%.



## Some other Biothane References in Biofuels Industry

E3 Biofuels	USA	2005
Abener Energia	Spain	2006
Hiram Walker	Canada	2007
Tate & Lyle	USA	2007
Roquette Frères	France	2007
Hokkaido BioEthanol	Japan	2007
City of Coshocton	USA	2007

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