

## Marsh Sewage Plant Process Details

### Marsh Ensign Sewage Treatment Plants

The Marsh Industries Ensign SAF Range of high performance sewage treatment plants use high specification Bio-Media (310m<sup>2</sup> per m<sup>3</sup>) filtration combined with the extremely low energy use compressors from Secoh. This along with the correct sizing and retention design provides submerged aeration filtration processing, SAF processing is firmly established as a reliable high performance sewage treatment practice.

The internal RAS (re-cycling from the humus chambers) also provides a higher effluent quality whilst balancing the flow over a twenty four period. This enables the plant to continue to treat and process the effluent through times of peak flow.

Marsh fit the scum ports to its internal baffles these continue to ensure the highest quality of bio-mass bacterial growth in the aeration chambers. Cylindrical precision die cut EPDM membrane diffusers are installed into the bio-zone to ensure diffused oxygen is distributed evenly throughout preventing “dead spots”

The Marsh Ensign plants are manufactured and designed for “turn key” domestic, commercial industrial and leisure site projects. Marsh Industries are members of British Water & the SBWWI and design the plants to the British Water loads & flows and European Standards. The plants can be designed and manufactured in modular form or with the design and manufacture calculated for lower levels of Ammonia treatment.

Marsh has submitted and holds five TUV-Sud test certificates for EN12566 sewage treatment and therefore our sewage plants have been type tested and certified to the latest UK & European standards EN 12566-3:2005+A1:2009. As detailed below the tested influent strength of the raw sewage is .49mg/litre/day far greater than the UK National Forward of .300mg/litre/day.

In standard configuration the plant offers treatment to a 12mg/l BOD: 19mg/l SS: 09mg/l NH<sub>4</sub> effluent quality. The plants are almost silent running and easy to maintain with only the Bio-media moving by the cyclonic action generated between the diffused oxygen and effluent.

Marsh plants are manufactured using only 100% pure resin and chop strand glass, some UK manufactures use up to 50% chalk powder as filling agent, in our opinion this can cause air pockets and inconsistency in wall thickness of the resin.

Treatment efficiency on organic daily flow BOD <sub>5</sub> = 0.49 kg/d	Marsh Tested % Reduction	Marsh Final Tested Effluent Quality mg/l
BOD <sub>5</sub>	97.4	11.5 (UK Standard 20mg/l)
COD <sub>CR</sub>	91.0	71.5 (no UK test for COD)
TSS	94.1	19.2 (UK Standard 30mg/l)
N-NH <sub>4</sub> <sup>+</sup>	81.0	8.4 (UK Standard 20mg/l)
P <sub>total</sub>	42.0	5.7 (no UK test for COD)

