

# Pollution Control (UK) Ltd

Designers & Suppliers of Effluent Management Technologies  
Turnkey Projects – Ancillary Equipment

TEL : + 44 (0) 1772 620066

FAX : + 44 (0) 1772 628996

Web : [www.pollutioncontrol.co.uk](http://www.pollutioncontrol.co.uk)

E-Mail : [info@pollution-control.co.uk](mailto:info@pollution-control.co.uk)

## Why SAF?

Within the wastewater industry SAF Technology is seen as the simplest and most cost effective method of treating domestic and commercial sewage/wastewater, particularly for small to medium sized treatment plants where available land is limited, and where full time operational manning would be uneconomical. A well built SAF plant has no moving parts within its main process zones, any serviceable items will be positioned to access easily without disrupting the ongoing treatment process.

### RESULTS

- Predictable performance
- Lower operation and maintenance costs
- No interruption to process
- Better whole life cost
- Easy installation



### SAF TECHNOLOGY

Submerged Aerated Filters (SAF) technology is a process used to reduce the organic loading of domestic and commercial sewage/wastewater, and in doing so will reduce the Biological Oxygen Demand (BOD) and a significant quantity of Suspended Solids (SS) which if otherwise untreated would contaminate river and sea outfalls, in other words it is used to substantially improve effluent discharge quality.

As with traditional methods of treatment, SAF technology uses three stages of dealing with sewage/wastewater

#### 1. Primary Settlement

Where larger solids settle into the bottom of the primary tank and are removed periodically as sludge, and where other buoyant materials float upwards to be removed usually by a scraping/screening method.

#### 2. Secondary Treatment

The essential biological stage where bacterial activity consumes the suspended organic material found in the decanted liquid from the primary process.

#### 3. Final Settlement / Clarification

Where remaining solids (Humus) are settled out of the biological treated effluent

### THE ECO-SAF PROCESS

Is a particular method of secondary biological treatment, in simple terms it is a biological cell or cells where a desired environment is created to optimise the consumption of organic matter by naturally occurring micro-organisms and where unwanted bacteria are eliminated thus reducing the biological oxygen demand in the process.

Dependant on hydraulic flows and organic loads which can be related to population equivalent (PE), the tank will be sized to accommodate a number of aerobic reactor cells. These cells maximise the flow retention time through the reactors which contain biomass support media.

The media is designed to have a specific surface area which supports a balanced bio-mass, where organic material is consumed by micro-organisms. Diffused air is fed upward at a controlled rate through the system giving a measured oxygen transfer which enhances the bacterial activity.

Operated correctly the ECO-SAF unit will remove around 97% of BOD & SS. Towards the end of the process when the organic bacteria becomes depleted, nitrifying bacteria will become dominant and reduce ammonia loading. In areas where the discharge is not close to sea outfalls there can be a need to further remove ammonia via nitrification, this can be an extended ECO-SAF process, but the design criteria does change a little to better accommodate the specific strain of bacteria.

## **DISCHARGE QUALITY**

The usual design criteria is to produce an effluent quality typically better than BOD 20 mg/l & SS better than 20 mg/l. Without additional nitrification and treating, normal domestic sewage ammonia discharges are around 10 mg/l.

## **INSTALLATIONS**

The small footprint design of a ECO-SAF plant allows for reduced plan requirements when compared to other types of treatment process. This means that existing treatment works which only have basic primary/decant facilities can easily be upgraded without the acquisition of additional land and that failing plant can often be retro-fitted by using some of the existing facilities, e.g. the primary stage of an RBC.

ECO-SAF units can be provided in a range of materials to suit an application, stainless steel and GRP being the most often used.

The design can be for stand alone secondary treatment or a number of options including front and back end processes to give a turnkey operation.

Equipment can be on level hard standing, part buried or fully buried leaving only aesthetically acceptable GRP covers and control boxes on view.



Dependant on sizes which range from 20 – 2000 PE the system would be delivered to a site in a number of modules and installed within a few days to a prepared area requiring only connections from the incoming main and connection to a sample chamber/outfall sump. We would always expect a suitable power main to be provided.

## **CONTROLS**

The operation of a ECO-SAF plant is continuous and the enclosures provided contain a full user friendly panel which gives duty selection of blowers and pumps and automatic transfer on failure.

Telemetry marshalling is optional and all status indicators are provided on the front panel. The control philosophy is thorough, but uncomplicated.

## **TEMPORARY SOLUTIONS**

Hire units are available at short notice which can be installed for emergency service at a failed works or provided with a planned refurbishment programme.