

“MICRO” PACKAGE SEWAGE TREATMENT PLANT

Micro 6POP PROCESS DESCRIPTION

INFLUENT DESIGN PARAMETERS.

DWF (Dry Weather Flow)	=	1.20m ³ /day
Peak Design Flow	=	3 x DWF
Organic Load	=	0.360kg/BOD/day
Nature of Influent	=	CRUDE SEWAGE
PH Range	=	6 – 8
Standard Effluent Quality	=	20mg / L BOD : 30mg / L SS : 20mg/L NH ₄ (Royal Commission Standard for direct discharge)

ALL SURFACE WATER MUST BE EXCLUDED. – NO WASTE DISPOSAL UNITS IN USE, AN EFFECTIVE GREASE TRAP MUST BE INSTALLED ON ANY COMMERCIAL KITCHEN DRAINS eg.: HOTELS / RESTAURANTS

The “**Micro**” treatment plant is of unitank design and incorporates Primary Settlement (PST) Biological Treatment (Biozone), and Final Settlement (FST) within the same structure, allowing delivery to site as a complete unit to provide for a simple and straightforward installation. No other tanks are required except for larger applications (over 300 p.e.) where a modular system is provided or where additional treatment may be required to achieve more stringent effluent quality standards or where effluent re-use is proposed.

The “**Micro**” Treatment plant has been designed to optimize the aesthetic qualities of the final installation by ensuring that there is minimum visual impact. The “**Micro**” process is designed in accordance with the requirements of BS 6297 and tested to BSEN 12566-3, achieving a 96.2% efficiency ratio which relates to an average effluent quality of 11mg/litre BOD : 16mg/litre SS : 7mg/litre NH₄.

PRIMARY SETTLEMENT TANK

The primary settlement tank is a two stage tank designed to maximize the removal of gross and suspended solids prior to transfer of the settled effluent to the biozone for treatment. The primary settlement tank also incorporates for a sludge storage volume (based on full load) depending on the desludge periods as identified for individual applications.

BIOZONE

The biological treatment phase utilizes BAF technology (biological aerated filter) which incorporates two proven principles of biological process in the form of a fixed film reactor for process stability and a suspended floc dispersed growth system for high transfer rates and operational control, to ensure a stable treatment process which is largely unaffected by shock loads.

The process incorporates a submerged, high rate, plastic media on which a fixed film of biomass is grown. This film takes nutrition from the incoming settled effluent and is provided with oxygen by means of a small blower unit which aerates the media through HDPE membrane diffusers to provide fine bubble aeration.

BIOZONE : contd.

The action of the fine bubble aeration is carefully controlled to provide optimum oxygen transfer rates and to provide a scouring action to slough off excess biomass to keep the thickness of the fixed biological film at optimum levels, thereby preventing the production of anaerobic bacteria and ensuring maximum process efficiency.

The fact that the media remains submerged allows for an element of suspended floc dispersed growth which basically means that there will be biomass which is “unfixed” to the media but achieves treatment through suspended aeration.

The biozone incorporates a two stage process as standard that allows for constant mixing of incoming settled effluent to provide optimum treatment stability and to avoid any “short-circuiting.”

The use of a two stage biozone ensures a high degree of process efficiency to not only reduce B.O.D. levels to that required, but will also achieve reductions in ammoniacal nitrogen in excess of standard requirements.

FINAL SETTLEMENT TANK

The final settlement tank is designed in accordance with the requirements of BS 6297 to ensure relevant surface areas and rise rates are achieved to provide maximum settlement of any suspended solids prior to discharge.

The “**Micro**” system also incorporates continuous and automatically timed humus sludge return systems to return humus sludge from both the final settlement tank and each biozone, back to the primary settlement tank.

Additionally this system also provides for continuous recycling of treated effluent back to the P.S.T. to not only provide dilution of incoming settled effluent but to also ensure continuous flow during periods of low or no flow, thereby keeping the biomass in prime condition.

To maximize efficiency and to minimize maintenance requirements and potential problems, there are NO mechanical or moving parts contained within the treatment plant.