Clenviro
environmental technology

MATRIX – TOPAS PLUS
SEWAGE TREATMENT SYSTEMS

The **MATRIX – TOPAS PLUS,** exclusively available from Clenviro Ltd, is an established sewage treatment system designed specifically for applications where regulating authorities are demanding extremely low levels of Phosphate and Ammonia in the final effluent discharge to meet ever more stringent environmental standards, as opposed to standard wastewater treatment systems

Fully independently tested and certified to EN12566-3+A2:2014 the **MATRIX – TOPAS PLUS** is available in a standard range of treatment systems from 7pe (residential) to 300pe (residential), larger systems are also available.

The system incorporates an integral sand filter and computer controlled chemical precipitant dosing within a single structure to ensure maximum reduction in Phosphate and Ammonia levels. thereby obviating the need for additional tanks.

Whereas many currently available systems rely on theoretical flow calculations and chemical dosing levels the **MATRIX – TOPAS PLUS** is a sequential batch reactor such that **only actual flows** are dosed with a precise amount of chemical precipitant, which not only ensures running costs are kept to a minimum but also ensures that the chemical is not 'overdosed', as this can have a detrimental impact on the receiving environment.

EN12566-3+A2 Certified Efficiency

Parameter	COD	BOD	SS	Ptot	Ntot	NH4-N
Efficiency%	96%	99%	97%	99%	81%	98%

EN12566-3+A2 Average Achieved Parameter

Parameter	COD	BOD	SS	Ptot	Ntot	NH4-N
Value mg/l	30	8	8	0.2	-	0.5

Advantages of the MATRIX – TOPAS PLUS

Built-in separate sludge tank with aerobic sludge stabilisation
Incoming flow balancing
Automatic control of the WWTP depending on **actual** inflow volumes
Guaranteed efficiency for up to 6 months **without** any inflow.
Control unit supplied with special software with WiFi/GSM connection for continuous monitoring
Established pedigree of performance.

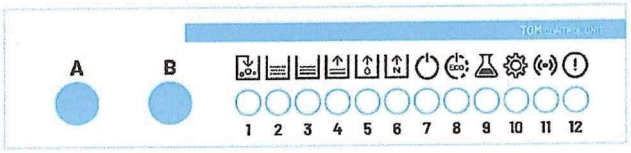
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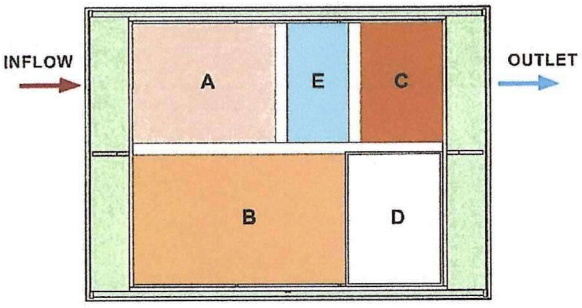
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PRINCIPLE OF THE TREATMENT PLANT FUNCTION

The treatment plant works on the principle of wastewater treatment using activated sludge in suspension. The air necessary for the life of the microorganisms is supplied by a membrane blower which is located directly in the treatment plant. The blower, together with the three-way valve is also used to drive mammoths which pump water between the individual tanks. The water treatment process is controlled by a control unit with a special program and data is transferred to the application on a mobile device (phone, tablet, laptop, etc.)via a WiFi connection.



TOM control unit



Floor plan of WWTP TOPAS

DESCRIPTION OF TECHNOLOGY

- A Accumulation
- B Bioreactor
- C Sludge tank
- D Box with technology
- E Sand filter

TECHNOLOGICAL PROCESS

1. Bioreactor filling phase

Wastewater flows into the accumulation tank and then is pumped by an air pump to the bioreactor where the biological treatment takes place. The bioreactor is aerated and the phase lasts until the level in the reactor reaches the filling level or the set time has elapsed.

2. Sedimentation phase

The blower is switched off during this phase. The sludge settles to the bottom in the bioreactor and the treated water is separated from the sludge layer. Sedimentation lasts for a set time.

3. Sludge removal phase

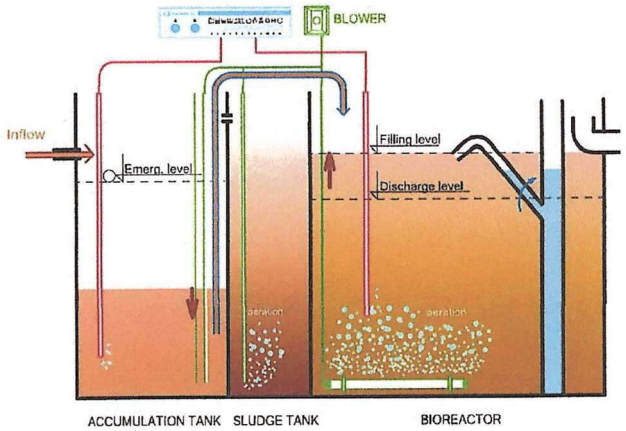
Excess sludge is pumped from the bioreactor to the sludge tank. The sludge removal lasts until the water level in the bioreactor is reduced by a set layer but not longer than the set sludge limit is reached.

4. Discharge phase

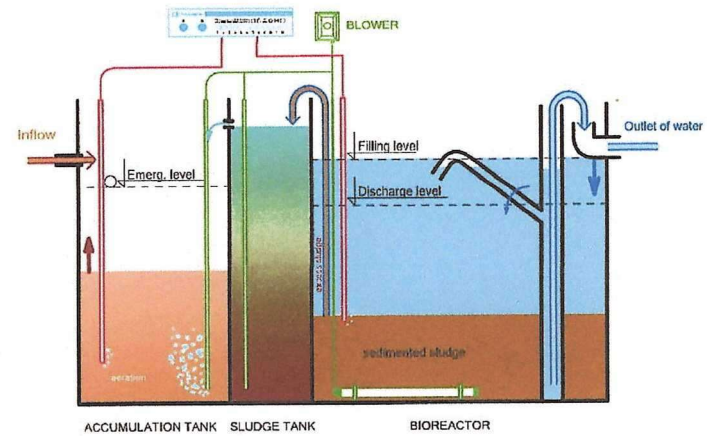
During this phase treated water from the bioreactor is pumped from the filling level to the discharge level until the discharge is completed. Water is pumped by an air-lift pump into a treated water container which has an overflow leading into the outlet or into a sand filter tank.

5. Recirculation phase

Part of water from the bioreactor is pumped into the sludge tank during recirculation and from there flows back into the accumulation tank. It is aerated at the same time. Recirculation phase lasts until the level in the bioreactor drops to minimum level.



Bioreactor filling phase



Sludge removal and discharge phases

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