

# SEWAGE TREATMENT PLANTS

# e-STP

Electrolytic Sewage Treatment

• Instant • Effective • Economical



Apartments



Villas



Hotel



Restaurant



Industry



IT Park



Hospital



Laundry



Service Section



Commercial Complex

## Integrated SLUDGE TREATMENT & DISPOSAL

Indus Ecowater is a pioneer in designing, manufacturing, installing Wastewater Treatment Plants using electro-chemical technologies since 2004. We have developed better designs with financial support from Department of Science & Technology, Govt. of India. We have integrated Electro-coagulation with Polymer injection to get highly effective treatment in sewage.

### Unique Advantages & Benefits

- **Noise Free** as it doesn't use air blowers at all
- **Compact design- 40% less space** as compared to any biological system as OGT, Aeration Tank & Sludge Tank are not needed
- **ON/OFF System** can be switched off whenever sewage is not available. Great during low occupancy.
- **Sludge Treatment & Dewatering** is an integral part of e-STP. Saves on sludge treatment & disposal cost
- **Designed for recycle-** just add additional modules of UF or RO as and when required
- **Modular** – Capacity can be enhanced by adding more modules when needed
- **Savings on civil works-** Construction cost of OGT, Aeration Tank, Sludge Holding tank is saved
- **Simple & Automated Operation** with low cost micro-controller reduces operator training and need for constant monitoring for maintenance
- **Low cost Consumables** Aluminum & Polymer only need to be replaced or replenished periodically depending on usage

### ■ e-STP for Sewage Treatment

Electrolytic is the passing of electrical current through water. It has proven very effective in removal of contaminants from water by destabilizing & coagulating suspended organic and inorganic solids, oxidizing dissolved impurities. e-STP is a major advancement in wastewater treatment using electrolytic technologies.



# e - STP How It Works

Sewage is pumped at the desired rate into a FRP reaction chamber containing a series of Aluminum electrodes. Alternate electrodes are connected to positive and negative of a DC rectifier. DC current flows into the electrodes with water being the conductor. Complex reactions take place. Few key reactions are:

- Formation of Hydroxyl (OH<sup>-</sup>)- a strong oxidizing agent instantly destroying organic molecules
- Formation of Alumina Hydroxide Al(OH)<sub>3</sub>- a strong coagulating agent that will settle out suspended solids in the settling tank
- Generation of Hydrogen gas that will create a foam which in turn will remove oil & other floating substances
- Electro-disinfection due to destroying DNA of micro-organism.

Treated water follows into a settling tank. Suspended solids settle the bottom and clear water flows into pre-filter tank. It is then passed through Pressure sand filter and activated carbon filter making it suitable for re-use. Treated water is suitable for gardening & toilet flushing.

Sludge is pumped into one of the cotton cloth bags in the bag filter for dewatering and drying. Once sludge is dry, it is odor and pathogen free. It is disposed off in gar-

## Operation & Maintenance:

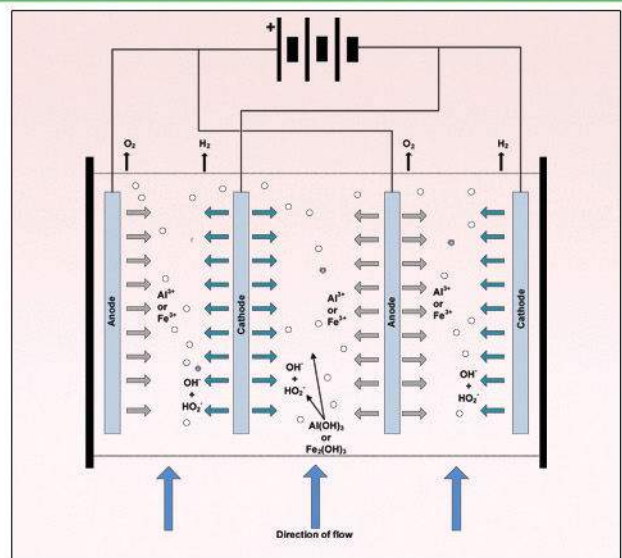
Once the e-STP is commissioned, our service team will train customer's operation team. It is handed over to customer for operation and maintenance. One operator is required during day time to operate and maintain the e-STP in optimum running condition. Smart automation will operate the plant 24 X 7 subject to sewage availability. Any equipment malfunction will generate an SMS to operator.

Optionally we can provide manpower for operating the plant at an additional cost.

**Spare parts:** All parts are standardized and we stock all spare parts so that there is no downtime for want of spares during any break down.

**Consumables:** Aluminum electrodes, Bag filters, Poly are available readily.

*AMC Facility available after warranty period at negligible cost*

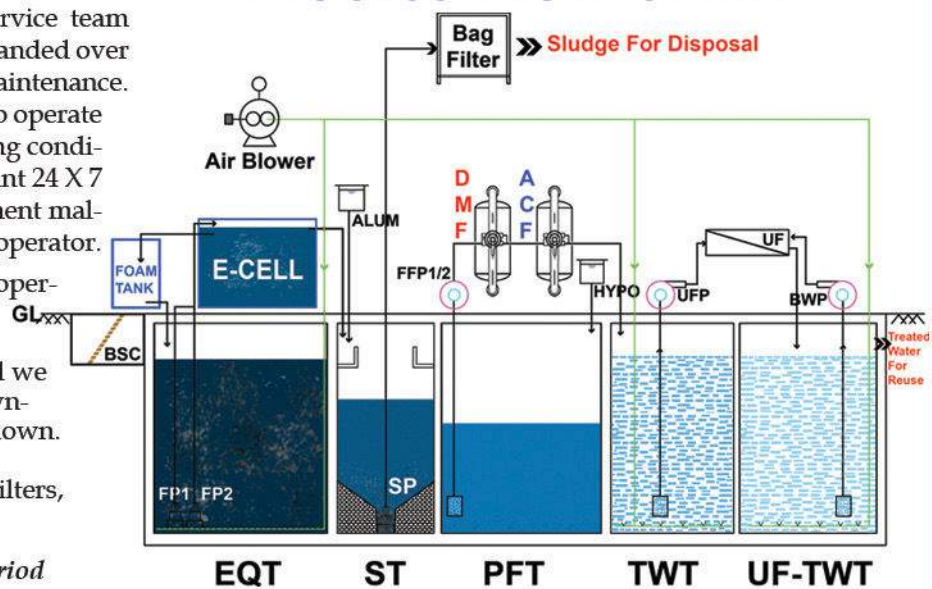


## Quick & Easy to Install

**Skid Mounted units:** 25, 50 & 75 KLD e-STP are available mounted on a skid and are ready to use. Installation takes less than 3 days.

**Site erected units:** All e-STPs are designed for working with civil tanks. On site plumbing, electrical connections and installation takes about one week. We provide required civil tank drawings and co-ordinate with customer's civil team to ensure civil works are suitable for e-STP.

## PROCESS FLOW CHART



## Typical Results

Parameter	Units	Untreated	e-STP		CONVENTIONAL STP	
			Result	Reduction	Result	Reduction
Turbidity	N.T.U	30	1.7	95%	10	66%
S.S	PPM	320	20	94%	55	83%
COD	PPM	400	60	85%	108	73%
BOD	PPM	250	25	90%	25	90%
D.O	PPM	Nil	4	-	Nil	-
Oil & Grease	PPM	150	30	85%	No effective Removal	-
E. Coli		Present	Nil	100%	Present	-

## Key Equipment

- Ionizer
- E-Cell
- Rectifier
- Bag Filter
- Feed Pumps
- DMF & ACF

# Features & Advantages :



## ON & OFF:

e-STP can be operated when ever is sewage availability. If collection tank is empty, e-STP will switch off automatically- saving a lot on power bills. First one / two years every project has lower sewage generation and e-STP saves power & manpower.



## 100% Automation:

All e-STP plants come with 100% automation. Single operator in day shift is sufficient to operate the plant 24 hours a day. Plant will switch on when sewage is available for treatment and switch off if tank is empty.

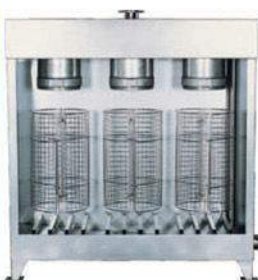
## 72 hour installation:

Pre-fabricated e-STP needs 50% less installation time on site. 3 to 7 days based on plant size.



## Minimal civil works:

40% smaller foot print & 45% savings on civil cost. e-STP needs collection tank, settling tank, pre-filter tank & treated water tank. Save on the construction cost & space required for OGT, Bioreactor & sludge holding tank.



## Bag Filter:

Digested sludge from e-STP is pumped into a bag filter containing a cloth bag with-out any power & moving equipment. Sludge will de-water leaving solids in cloth bags. A bag filter has 3 or more bags to enable

use of one while sludge dries up in the rest. Unlike a filter press, sludge need not be handled by operators.



## Silent Operation:

e-STP doesn't use external air blowers. Noise will be below 50 dB. Residents close to STP will not complain of noise anymore with e-STP. Aeration for collection tank & treated water tank will be provided with submersible jet aerator pumps.

## Sludge disposal:

Dewatered sludge from e-STP is inorganic- has no smell or color. It can be disposed off into domestic garbage. This saves on the cost of septic tanker. Cloth bags are cheap & disposable. Hands free sludge disposal is an added advantage to operators.



## One Operator:

66% savings on manpower cost. e-STP automation enables a single operator to run the plant 24 hours a day where as a conventional plant would need 3 operators for 3 shifts.



## Eco mode

When sewage flows are lesser, eco mode reduces e-STP operation and saves electricity. if sewage load is 50%, the power consumption is 50%. savings of 50% on energy cost. Great !!! Isn't it ?



## Re-use water:

Treated water quality good and suitable for gardening without any further process. High quality re-use like toilet flush should preferably be done after Ultra Filtration. e-STP treated water is suitable for further advanced process like UF & RO.

## Spare parts:

All parts of e-STP are standardized. They are available ex-stock for any emergency replacement. The down time will be minimal even in an emergency breakdown.

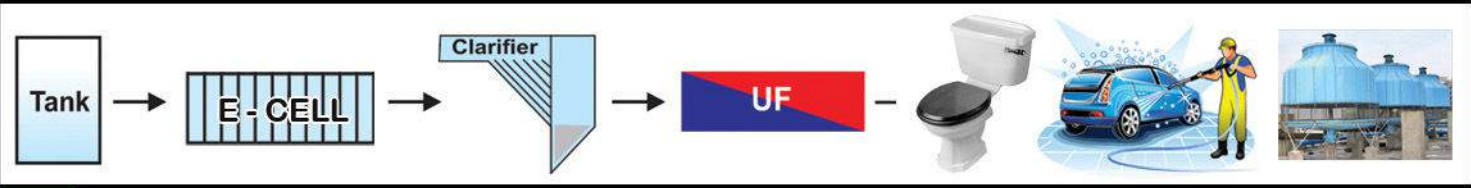
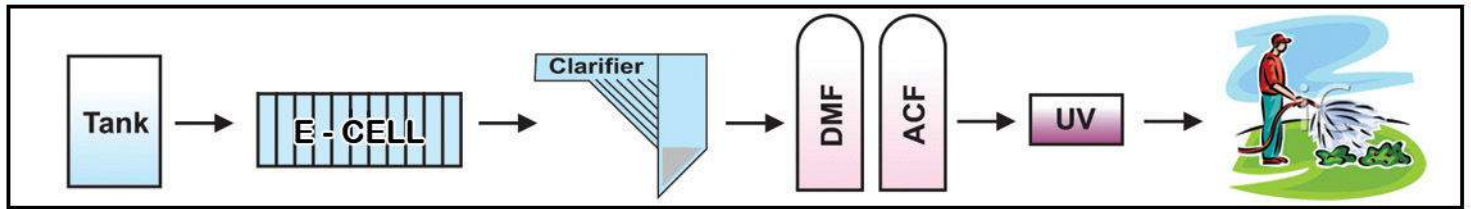


## Guarantee:

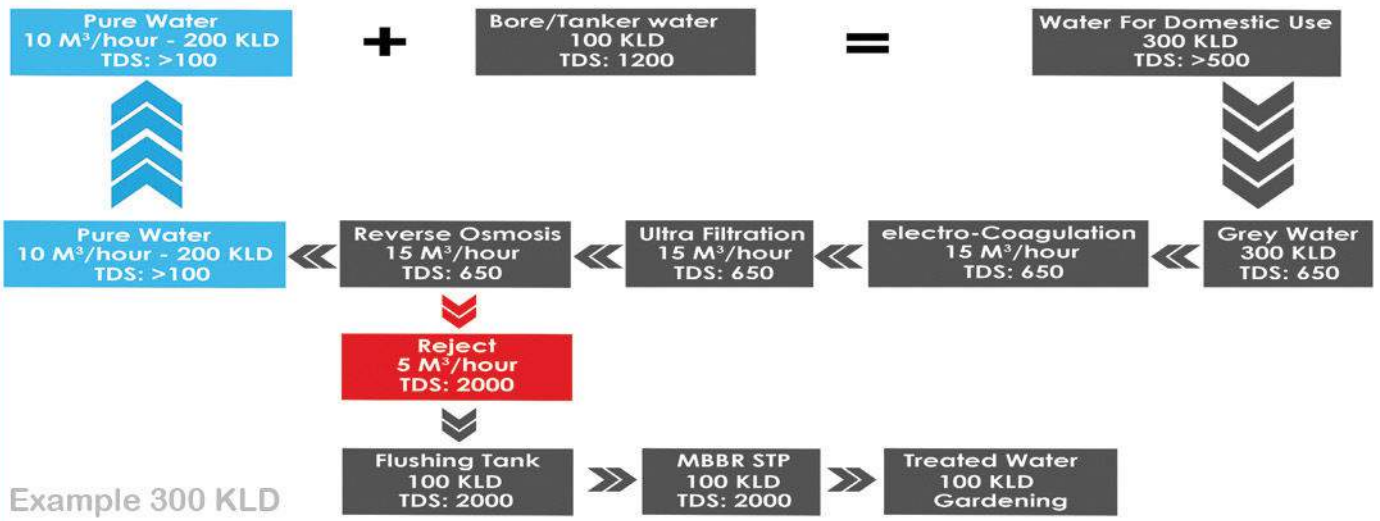
e-STP comes with industry leading 24 months guarantee against any manufacturing defect or workmanship. Optional O & M, AMC & ready stock of spares. Peace of mind!!



# Recycling Options



ZERO DISCHARGE PLAN WITH e-STP



## COMPARISION OF e-STP Vs CONVENTIONAL STP

	Conventional	e-STP	Remarks / Savings
1.	<b>Civil works:</b> BSC, OGT, EQT, Bioreactor, SST, PFT, TWT & SHT	<b>Civil works:</b> BSC, EQT, SST, PFT& TWT	Space required for OGT, Bioreactor & Sludge tank Cost of constructing OGT, Bioreactor & Sludge tank
2.	Aeration is essential & noisy	No aeration at all & silent	No Blower noise
3.	24 X 7 X 365 Operation	On / Off when sewage available	Power savings when sewage loads are lesser
4.	25 to 30 day start up time	30 minutes start up time	No minimum load for process
5.	Skilled operator for MLSS check	No MLSS & No operator skill	New people also can operate
6.	Can't handle shock loads	Can handle shock loads easily	-
7.	Treated water quality average	Better quality treated water	-
8.	Not Suitable for UF & RO	Suitable for UF & RO	Ready for water shortage
9.	Expansion is difficult	Easy to expand capacity	Add more modules to expand
10.	High maintenance for blowers	Less maintenance	Save on blower maintenance
11.	Difficult to resolve problems	Easy to resolve	Lesser down time
12.	Sludge not digested	Digested sludge	Save on blower cost for digestion
13.	SHT for sludge storage	No sludge storage with bag filter	Save on SHT cost & blower cost
14.	Pay for sludge disposal	Low cost sludge disposal	Save on sludge disposal cost
15.	Sludge dewatering is difficult	Sludge dewaterers easily	Low cost bag filter can be used
16.	Temperature dependent process	Process at any temperature	e-STP works even in cold areas
17.	Zero discharge not possible	Zero discharge is possible	Future ready

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Customized STP



Packaged STP



Recycling UF



WTP



Auto Softener

