

In this issue, we feature two of Ion Exchange India's projects - for textile dyeing effluent treatment & recycle and for zero discharge plant for petroleum industry. Also, advanced technologies for solid waste treatment and energy recovery from waste offered by our joint venture Ion Exchange Waterleau Ltd.

Prestigious Recycle Project

INDION® Effluent Treatment & Recycle Plant at Angeripalayam Common Effluent Treatment Plant, Tirupur

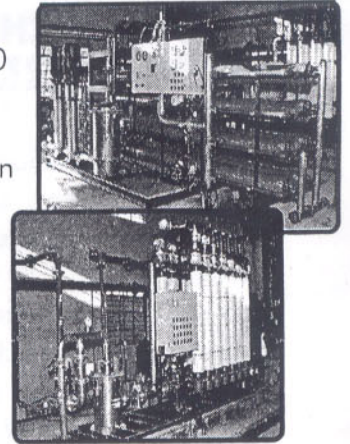
Ion Exchange India (IEI) has been awarded the contract for installation of the INDION common effluent treatment and recycle plant at Angeripalayam Common Effluent Treatment Plant (ACETP), Tirupur. The plant will treat 10 MLD of effluent generated by around 75 dyeing units. The existing CETP is available for primary treatment for colour removal and COD/BOD reduction. IEI is now upgrading the facility to achieve zero discharge (approx. 82% permeate for reuse as fresh water, 10% as brine solution for reuse in dyeing and 8% to evaporator). The treatment scheme comprises:

- INDION membrane bio-reactor-chlorination-ion exchange columns (for colour and hardness removal)
- The filtrate passes through 2 stages INDION reverse osmosis (RO)
- The RO reject is then treated by an INDION high rate solids contact clarifier (HRSCC) for silica removal and then,
- Nano filtration (NF) for removal of COD, hardness and colour reduction.

The NF permeate contains high amount of salt which can be used in the dyeing process by individual units. NF also helps in reduction of volume of water passing through the evaporator thereby reducing the capacity of the evaporator. IEI had earlier taken up a 500 m³/day pilot plant for Angeripalayam CETP, Tirupur which included a 50 m³/day INDION membrane bio-reactor unit that has

given excellent results in COD reduction, from 500 to 100 ppm. The reason why MBR also forms part of the treatment scheme in the current 10,000 m³/day contract.

The plant not only saves the input cost of fresh water but also solves the issue of waste water disposal.



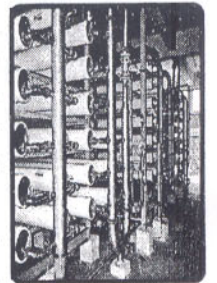
Successfully Commissioned

INDION® Zero Discharge Effluent Recycle Plant for CPCL

Ion Exchange India has successfully commissioned a zero discharge effluent recycle plant for Chennai Petroleum Corporate Ltd. (CPCL), Manali, Tamil Nadu.

The plant, feed capacity 200 m³/h, incorporates pretreatment, coagulation and filtration, ultra filtration and reverse osmosis, and degasification. It treats water from the existing effluent treatment plants of CPCL, for process use in the refinery. This is saving more than 4000 m³/day of scarce fresh water and over Rs. 20/m³ compared to the costs of fresh water.

The zero discharge plant demonstrates that recycle of waste water not only protects the environment but also makes good business sense. IEI has also been awarded the O&M contract for this zero discharge plant.



INDION is a registered trademark of Ion Exchange (India) Ltd.

Introducing

Solid & Hazardous Waste Treatment and Energy from Waste Solutions



Our joint venture Ion Exchange Waterleau Ltd. (IEWL) provides

environmental solutions spanning waste water and sewage treatment, solid waste treatment and disposal, hazardous waste management, air pollution control and renewable energy generation, for industrial, municipal and infrastructure projects. *Here, we focus on the advanced drying and combustion technologies for treatment of solid and hazardous waste and state-of-the-art energy from waste solutions offered by IEWL.*

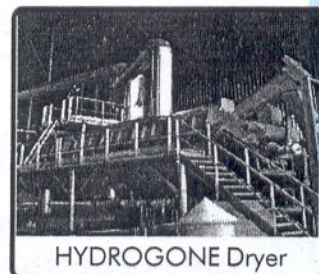
Indirect convective drying technology is the safest way to dry bio-solids due to the very low oxygen vapour atmosphere (< 2% or 2.5 times below the lower explosion limit). Evaporation capacities range from 300 kg/h to 14000 kg/h per machine and integrated treatment of the vapour stream is included. It can produce partial or complete drying with dry solid contents between 25 – 90%, and conversion into hard, dust-free granules for safe disposal as non-hazardous solid waste or for use as fuel.

A complete range of combustion technologies are available for the ultimate treatment and thermal valorisation of segregated municipal solid waste; liquid and pasty wastes of industrial sludges and slurries; hazardous bio-medical wastes etc., with flue gas emission levels for CO, NO_x, C_xH_y below 50% of EU limits. The hot flue gases are cooled in waste heat recovery boilers for low, medium or high pressure steam generation.

Anaerobic digestion technology for concentrated effluent streams is an excellent source of biogas. Biogas generated from the waste treatment

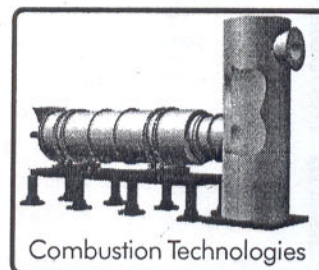
processes can be used in biogas engines to produce electricity in boiler systems (steam production) and hot water producing boilers.

HYDROGONE®
Horizontal Disk Dryer
The dryer can be used for partial or complete (>90% DS) drying.



HYDROGONE Dryer

PUTT-ART® Dryer-Granulator
The dryer can be used to produce hard, dust free granules with >90% dry solids content and a very narrow size distribution. The dry solids can be used as Refuse Derived Fuel (RDF) in boiler for steam generation.



Combustion Technologies

DYN AFLUID®
Multifluid Thermal Oxidiser

Thermal oxidizers for thermal valorisation of pumpable suspension, slurries and liquids with or without heat recovery boiler.

ENERGIZE® Grate
Especially developed for combustion of wet municipal solid waste, hazardous medical waste, Refuse Derived Fuel (RDF), packaging waste, etc.

TURNOVER® Rotary Furnace
Flexible rotary furnace for thermal valorisation of solid, liquid and pasty wastes; hazardous medical waste.

HELIOSOLIDS® Fluidised Bed Reactor
Fluidised bed furnaces for evaporation-gasification-combustion of wet sludge or thermal valorisation of industrial sludges and slurries with or without heat recovery boiler.

LUCAS® Anaerobic Digestors
Efficient treatment and generation of biogas/ electricity/heat from municipal sludge, manure, bio-waste etc.