SS Techno Limited
Turnkey Zero Liquid Discharge Systems

Turnkey Zero Liquid Discharge (ZLD) Plants for Industrial Waste Water
**About Us**

SS Techno was founded by experienced technocrats in the year 2001, to supply innovative Turnkey Zero Liquid Discharge Systems based on Evaporation and Drying technology. The focus areas are Total Solutions for Industrial Waste Water and Food sector. SS Techno has supplied more than 150 evaporation systems till date.

The projects are executed on a ‘Concept to Commissioning’ basis. The focus is always on maintaining world-class engineering standards with optimum investment and operation cost for the customers.

SS Techno has gone global since 2002, with presence in many countries. Turnkey plants have been exported to Indonesia, Malaysia and Philippines.

**Infrastructure**

SS Techno has an experienced pool of engineers. The plants are designed meticulously with inputs from pilot-scale experiments and state of the art technology, using in-house design softwares and prominent engineering codes. SS Techno has its own, well equipped facility to manufacture the equipment required for the projects, under stringent quality control measures. The plants are erected and commissioned by dedicated teams of skilled technicians under the guidance of well trained site engineers. Our service engineers give prompt and reliable technical guidance to the customers, whenever necessary.
Research and Development

Technology is the backbone of SS Techno’s progress. Consistent Research & Development enables SS Techno to launch new products to maintain a competitive edge in the market. SS Techno has developed in-house expertise for various technologies. Some of them are: Concentration of raw/biomethanated spent wash/vinasse upto 95% solids (w/w), integration of Multiple Effect Evaporator (MEE), innovative Zero Liquid Discharge (ZLD) plants for other industrial effluents, recovery of various salts etc.

Careful experimental analysis of the application is conducted prior to design. This is also backed by a sound literature bank and library, with latest information in the field. SS Techno’s plants are operation friendly, with optimum utility consumption and desired product quality.

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Turnkey Zero Liquid Discharge Systems
Zero Liquid Discharge (ZLD) Plants
For Industrial Waste Water

SS Techno evaporators are state of the art units specially designed for your specific application, considering the physical/chemical properties and special characteristics of the effluent. Extensive technical knowhow and hands-on experience in the field, ensures the right solution at optimum cost of investment and operations.

Thermal evaporation is an energy-intensive operation. SS Techno evaporators are designed in multiple stage units (with or without thermal vapor re-compression) to ensure optimum steam consumption and power utilization. This keeps the cost of operation as low as possible.

Our evaporators have minimum scaling problems and require only chemical cleaning (CIP), usually once every 2 weeks. The plant is operated on a 24 x 7 basis. The condensate is clean with Total Dissolved Solids (TDS) less than 150 ppm, and can be recycled back to the plant.

The concentrated product is disposed off as per the specific norms of the industry. It can be dried/disposed off in landfills. If required, we supply specialty dryers such as screw conveyor dryer, SST Dryer™, spray dryer as a post-evaporation stage. After drying, some of our customers incinerate the concentrate in a regular boiler or sell as a valuable product.
Zero Liquid Discharge Plant for Pharma Industry

Zero Liquid Effluent Discharge Plant from Pulp & Paper Industry

Zero Liquid Discharge Plant for Paint Industry

Schemes
- Concentration of RO reject
- Concentration and disposal of high COD streams
- Recovery of Dissolved solids
- Solvent recovery

Solutions for Applications
- Distillery
- Brewery
- Pharmaceuticals & Allied
- Engineering, Cement & Steel
- Dyes/Paint
- Tyres
- FMCG
- Pulp & Paper
- Chemical and Allied Industry
- Fish/Meat Processing
- Mineral Processing
- Electronics & Hardware
- Vegetable Oil & Refinery

Zero Liquid Discharge Plant for Steel Industry

Zero Liquid Discharge Plant for Vegetable Oil Industry

Condensate from MEE for Pharma Industry

Recovered Salt from Vegetable Oil Industry

Concentrated Solids from SST Dryer™ for Pharma Industry

Recovered Salt from Mineral Processing Industry

Turnkey Zero Liquid Discharge Systems
Molasses based distillery effluent known as spent wash/vinasse/dunder/thin slops, is one of the most difficult applications for evaporators. These effluents are characterized by a high Chemical Oxygen Demand (COD) and high volumes, creating a heavy pollution load on the environment. SS Techno has developed various Innovative evaporation technologies to achieve total Zero Liquid Discharge solutions for the distillery industry.

SS Techno evaporators are designed for any steam pressure available with the customer, and are guaranteed to give crystal clear condensate. The entire water can be recycled after proper polishing treatment. Raw effluent/post-biogas effluent have been successfully handled. Special applications using alcohol vapours/excess vapours from sugar industry, instead of boiler steam have been also implemented.

Concentration of solids to any level from 30% to 95% (w/w) has been successfully achieved in various plants as per the need of the customer. Concentrate with 70% solids (w/w) has been successfully incinerated in regular boiler by mixing it with primary fuel such as bagasse/wood chips/rice husk etc.

Grain based distillery effluents are popularly known as thin slops and are concentrated to be used as cattle feed, by mixing with Distillers Wet Grain Solubles (DWGS).
Options for total ZLD

- Bio-composting - Spent wash concentrate with 30% solids (w/w)
- Incineration - Spent wash concentrate with 70-95% solids (w/w) and support fuel in regular boiler
- Using as fertilizer at a concentration of 90% solids (w/w)

Zero Liquid Discharge Plant for Bio-methanated Spent Wash

Multi Effect Evaporation Plant for Grain based Distillery

Integrated Evaporation Plant

Operations Suitable for
Multipressure Vacuum Distillation/
Atmospheric Distillation

- No steam required
- Spent wash concentration achieved above 25% solids (w/w)
- Operations restricted on ground floor only
- CIP cleaning once every week

Stand alone Evaporation Plant

- Evaporation design for any steam pressure available with you
- Spent wash concentration upto 95% solids (w/w), as per your requirement
- No physical cleaning required
- Only CIP cleaning once every two weeks
- Incineration of concentrated spent wash by mixing it with bagasse/wood chips/biomass mixture in regular boiler as fuel stock

Turnkey Zero Liquid Discharge Systems
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SS Techno “Integrated Evaporators” are designed using a mixture of alcohol and water vapour as the heat source in place of steam. SS Techno has installed these units for both Multipressure Distillation columns and Atmospheric RS/ENA Distillation columns to reduce the spent wash effluent quantity by more than 50%. Successful references are available for raw spent wash and biomethanated (post-biogas) spent wash applications.

The total solid percentage in the spent wash feed is enhanced almost by a factor of 2.4 in the product concentrate. These evaporators produce crystal clear condensate, which can be completely recycled by secondary treatment in a Condensate Polishing Unit (CPU).
Integrated Evaporation Plant for Raw Spent Wash
On Multipressure Distillation

Integrated Evaporation Plant for Biomethanated Spent Wash
On Multipressure Distillation

Integrated Evaporation Plant for Biomethanated Spent Wash
On Atmospheric Distillation

**Integrated Evaporation Plant**

**Operations Suitable for**

Multipressure Vacuum Distillation/
Atmospheric Distillation

- No steam required
- Payback period on investment is around 1 year
- 24 hours continuous operation
- Operations restricted on ground floor
- Cleaning once a week for 6 hours for biomethanated spent wash
- Cleaning once in 3 days for 6 hours for raw spent wash

**Heat Source for Evaporation**

- Alcohol-water vapour mix from Multipressure RS / ENA
  Distillation System
- Alcohol Vapour from Atmospheric RS/ ENA Distillation System

Condensate from Integrated MEE for Distillery Industry

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**Turnkey Zero Liquid Discharge Systems**
International Customer Base

SS Techno Limited

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