

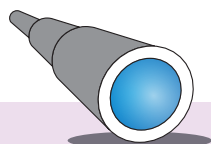


Turnkey Process Solutions

**TOPSE Process Solutions
Pvt. Ltd. Pune, India**

ABOUT US

TOPSE Process Solutions Pvt. Ltd is an EPC Organization providing the Turnkey Project Solutions for Process Industries. Specialized expertise in supply of Pharmaceutical, API, Biotech and Chemical Industries on Turnkey Basis. Our Turnkey delivery option includes all comprehensive services. Proposal, Process Design, Engineering, Manufacturing, Erection and Commissioning, validation.



VISION

To be the most efficient and leading Engineering Company renowned for our working Methodologies, Technological and Human Resource Capabilities



MISSION

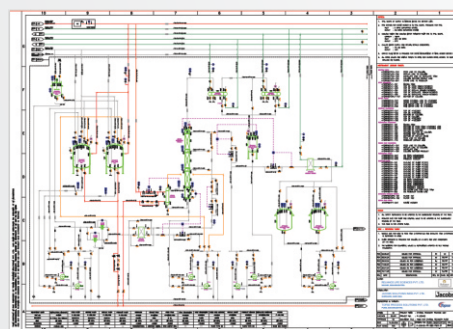
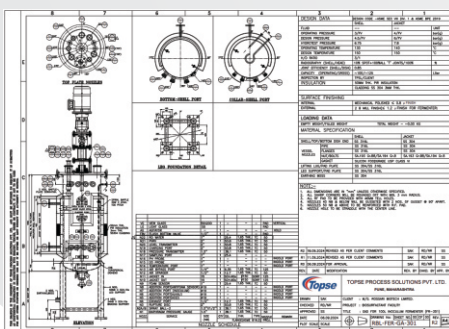
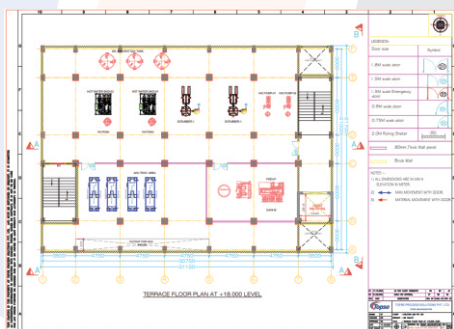
Our Mission is to deliver value to our clients and stakeholders by providing complete turnkey solutions in Pharmaceutical, Biotech, API, Chemical and Speciality Chemicals.

TECHNOLOGIES

Biotech Turnkey Plant :	Fermenter, CIP, Media Preparation, Ultrafiltration System, Microfiltration System
Single Fluid heating and cooling system :	Semiautomatic/fully automatic through PLC /Centralized DCS
Distillation Systems :	Batch & continuous distillation, Multi Component/Complex & Azeotropic distillation
Extraction Systems :	Liquid - Liquid Extraction (RDC & Packed Column)
Evaporation Systems :	ATFE, RFE, FFE, FCE,
Solvent Dehydration Systems :	PSA, TSA, Pervaporation and Vapor Permeation Membrane system.
Turnkey process Plant :	Process design, Engineering, Manufacturing, Supply & Execution of Process Plants, Electrical & Automation.

ENGINEERING CAPABILITIES

- ▶ Process Design & Engineering
- ▶ Process Simulation through Aspen Plus
- ▶ Mechanical Design (2D & 3D) Solid Works





TURNKEY BIOTECH PLANT

Upstream Process Equipment

- ▶ Fermenter / Bioreactors
- ▶ Feed Vessels
- ▶ Media Preparation Vessels
- ▶ CIP Skid

Downstream Process Equipments

- ▶ Ultra filtration System
- ▶ Micro filtration System
- ▶ Buffer Preparation Vessels

HEATING-COOLING SYSTEM

Ideal solution to overcome most of the limitations with traditional multi utility based heat transfer and control system.

Features:

- ◆ Temperature range from -30°C to 350°C with Precise temperature control.
- ◆ Rapid heating or cooling thus reduces the batch time.
- ◆ No switching between jacket service fluids, preventing cross contamination.
- ◆ Remote control panel with flameproof enclosures.
(suitable for gas group IIA, IIB and IIC) Zone 1, Zone 2
- ◆ Less Maintenance and Easy to maintain.



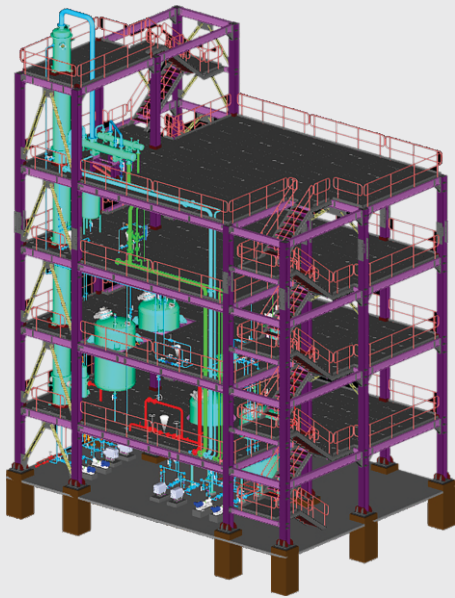
PLUG FLOW REACTOR (FLOW CHEMISTRY)

- ▶ **Precision Engineering** : Our PFRs are engineered for optimal reaction conditions, ensuring uniformity and high conversion rates across various applications.
- ▶ **Advance Manufacturing** : Using the latest Technology and rigorous quality control, we deliver reactors that meet the demands of both small-scale and large-scale operations.
- ▶ **Custom Solutions** : We offer customizable options to fit specific process requirements, helping you achieve unparalleled efficiency and effectiveness in your operations.
- ▶ **Sustainability Focus** : Our reactors are designed with energy efficiency and minimal environmental impact in mind, aligning with your sustainability goals.

DISTILLATION SYSTEM

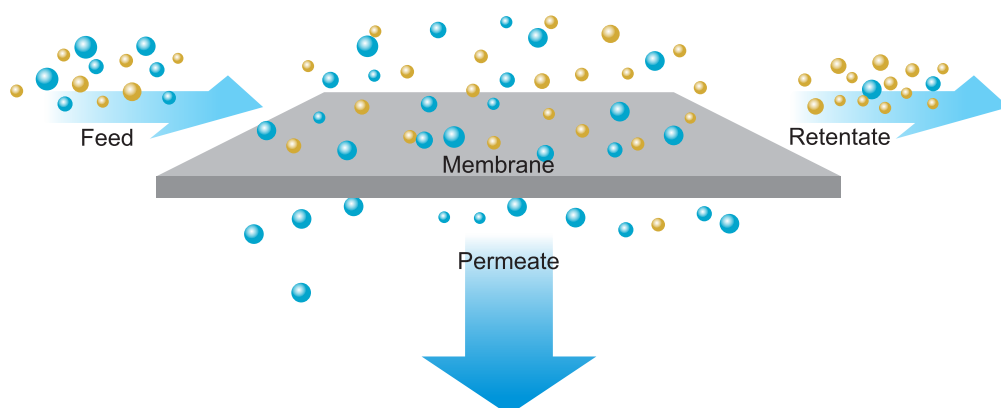
Topse is a leading Distillation Column Designer, Manufacturer, offering Distillation Columns that are able to handle a wide range of streams simultaneously.

- ▶ Batch Distillation
- ▶ Continuous Distillation
- ▶ Azeotropic Distillation
- ▶ Vacuum Distillation
- ▶ Reactive Distillation
- ▶ Extractive Distillation
- ▶ Molecular Sieve Dehydration by Pressure Swing Adsorption (PSA)
- ▶ Molecular Sieve Dehydration Temperature Swing Adsorption (TSA)



MEMBRANE SEPARATION TECHNOLOGY (PERVAPORATION)

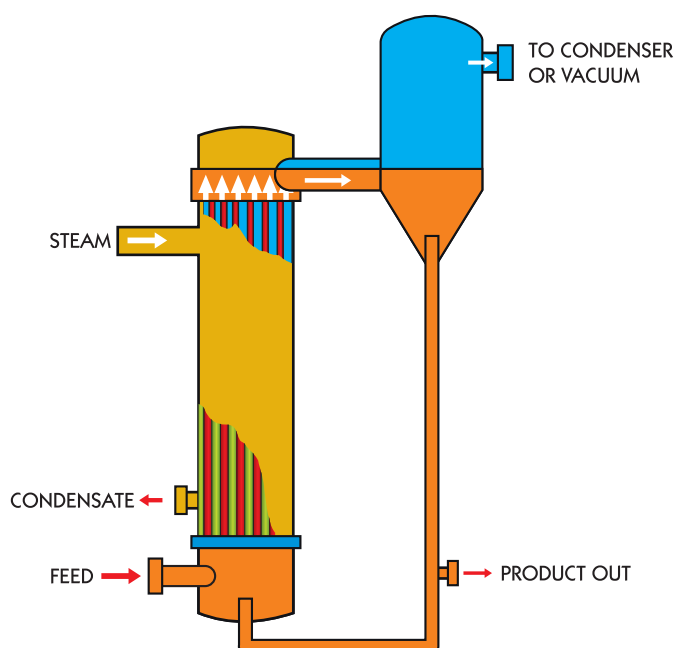
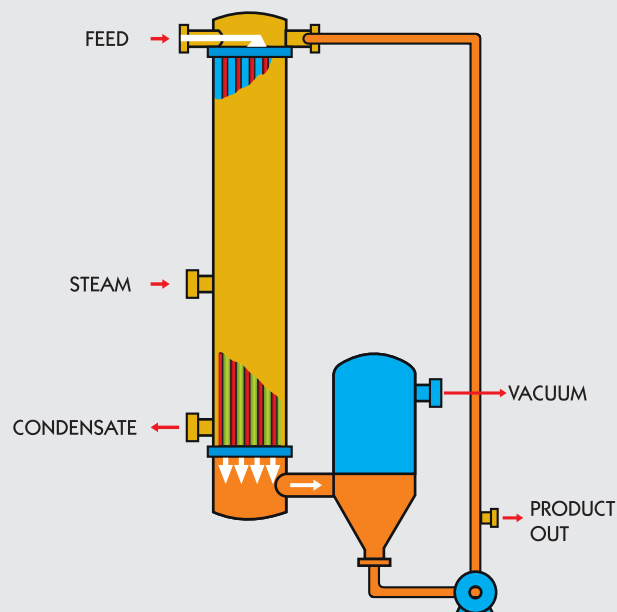
- ▶ Membrane separation technology is based on the physico-chemical interaction between the membrane and the permeating molecules.
- ▶ Highly hydrophilic materials of membrane enhance selective sorption and diffusion of water (permeate) through a thin dense membrane layer.
- ▶ Therefore, making it ideally suited for the dehydration of solvent mixtures, especially azeotropes where conventional technologies, like distillation, require complex and energy-intensive processes.



FALLING FILM EVAPORATOR

Features :

- ▶ Can operate under reasonable vacuum
- ▶ Gentle evaporation with a short residence time in the evaporator
- ▶ Suitable for heat sensitive products
- ▶ Multiple effect arrangement provides steam economy



RISING FILM EVAPORATOR

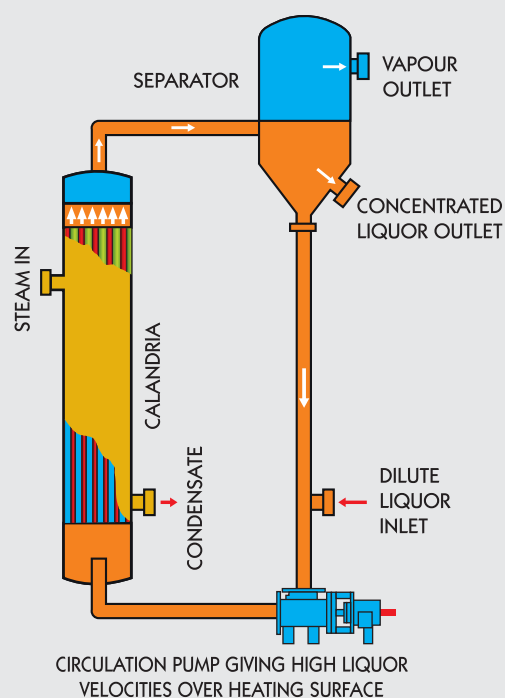
Features :

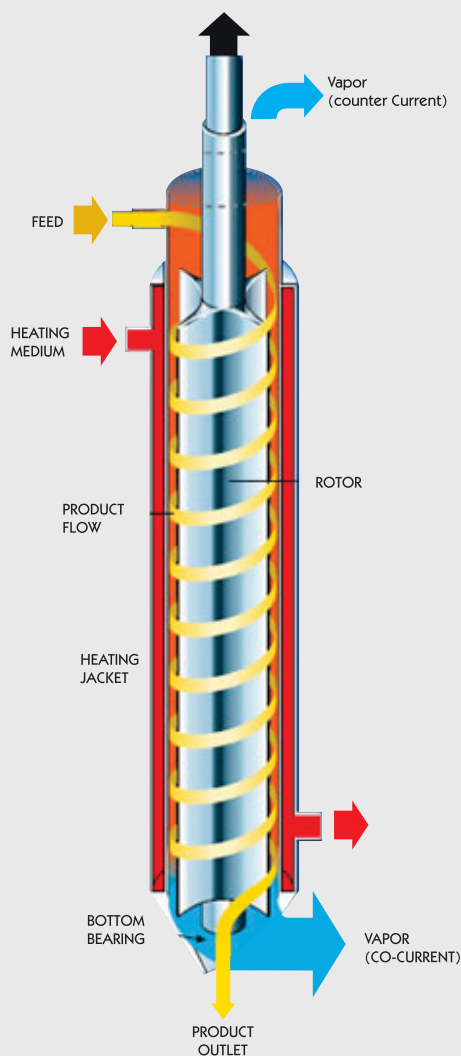
- ▶ Can operate under reasonable vacuum
- ▶ Thermosyphon action eliminates the need of circulation pump.
- ▶ Trace quantities of suspended particles in the feed are tolerated.
- ▶ Multiple effect arrangement provides steam economy.

FORCED CIRCULATION EVAPORATOR

Features :

- ▶ Suitable for highly viscous, scaling & salting liquids
- ▶ Suitable for wastewater with high suspended solids
- ▶ Fouling is minimized due to high liquid velocities & suppressed boiling in the tubes
- ▶ High tube side velocities can be achieved.





AGITATED THIN FILM EVAPORATOR

An Agitated Thin Film Dryer / Evaporator (ATFD/ATFE), also known as Thin Film Evaporator (TFE) or Wiped Film Evaporator (WFE). They are mainly used for difficult vaporization and heat exchange processes, especially where products to be handled are highly viscous and conventional plants can no longer meet user demands because heat transfer is insufficient. Due to the liquid film, mechanically generated on the heating surfaces, thin film equipment achieve much better heat transfer rates, even with highly viscous products containing solids.

Features :

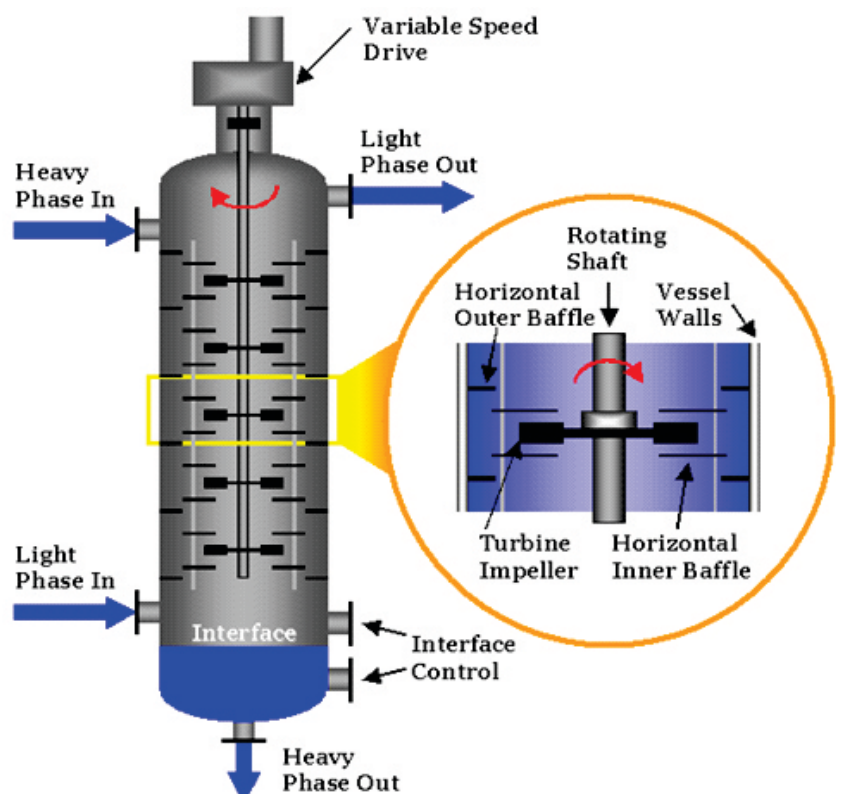
- ▶ Low Residence Time.
- ▶ Once through pass without recirculation
- ▶ Localised heat transfer coefficient reduction is avoided by giving the intense agitation thus avoiding the scaling.
- ▶ Product hold up is low

LIQUID-LIQUID EXTRACTION

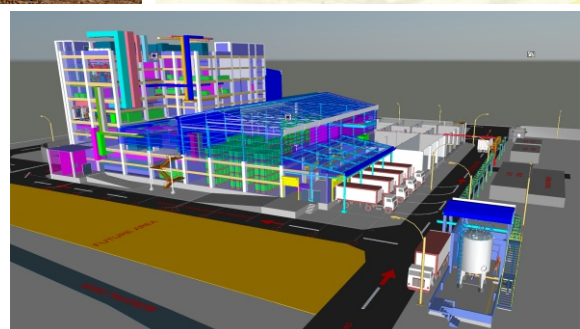
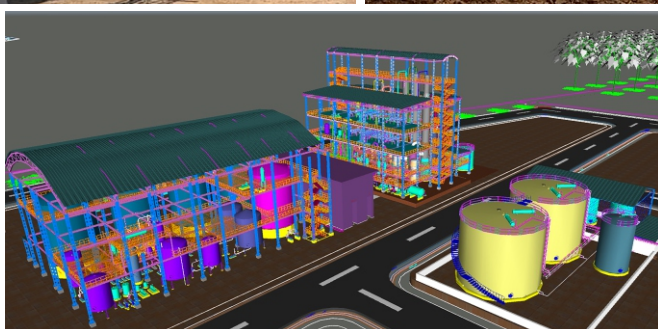
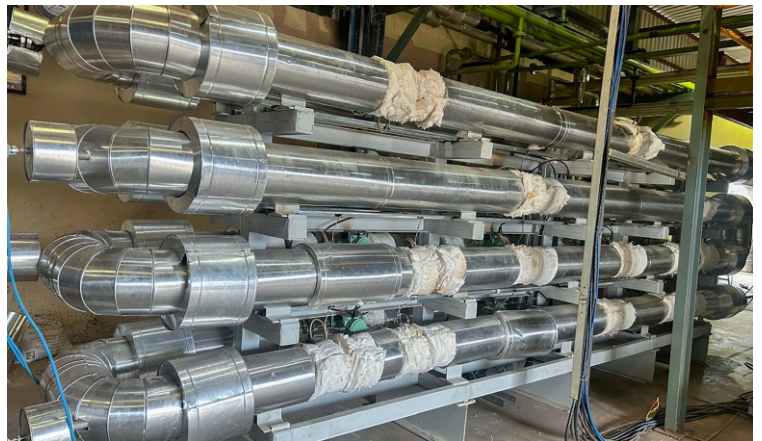
Liquid-liquid extraction is a complex separation process in which the components are extracted from the feed stream with the help of an extractant, or solvent. The components to be extracted have a different solubility in the two immiscible, or partially miscible, liquids. Both liquids have to be thoroughly contacted and subsequently separated. The liquids flow counter-currently and the required purity and yield determines the number of separation stages.

Features :

- ▶ Used in separation of low volatility liquid Mixture.
- ▶ Used for separation of Heat Sensitive Material.
- ▶ To break Azeotropes.
- ▶ Used when Distillation is not enough to separate solvents.
- ▶ Continuous operation



TURNKEY PROJECTS





Team Topse

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