Semmathi Engineering

Manufacturers of Lubricating Oil and
Used Oil Recycling Plant Equipments

Wiped Film Evaporators Machinery

Office : 6/2, Kamarajar Street, Katabomman Nagar, Vengadamangalam, Ponmar Post, **CHENNAI – 600 127**
Factory : Plot No. 8-A, SIDCO Industrial Estate, Ammanur Village, (Opp. To Court), **ARAKKONAM – 631 002**

Semmathi Engineering

About Semmathi Engineering

Semmathi Engineering is a market leader in Grease Plant Equipment Suppliers, Industrial & Automobile Lubricating Oil Blending Plant.

Lube Oil Plant and Grease plants equipment offered by us are designed and tailor made to suit all International and local conditions & customer requirements.

Our range of lube and grease plant equipments range made suit for simple manually operated plants to highly sophisticated and fully automated plants.

We offer these services with various package based on customer requirements.

Wiped Film Evaporators

Our film evaporators enable you to produce high-purity substances from heat sensitive and complex products. The use of vacuum and the short time a product stays in contact with the heated surface are two essential factors to prevent a deterioration of quality through secondary reactions (like polymerization and condensation) and to preserve organoleptic product properties (color, smell, taste), as required in many industries - food, fine chemical and pharmaceutical.

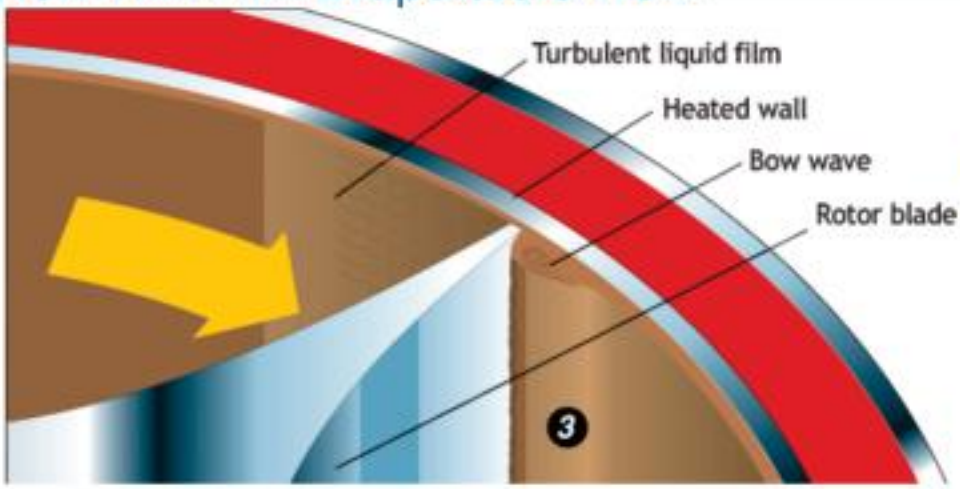
We are able to offer you specialized film evaporation technologies, with both static and mechanically agitated film evaporators.

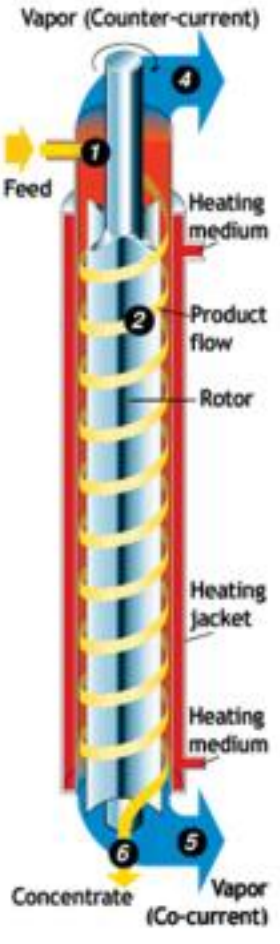
Industries and Products

Our film evaporators are mainly used in the following industries :

- Chemical and fine chemical industry
- Pharmaceutical industry
- Food and beverage industry
- Biotech industry
- Oleochemical industry
- Nutraceutical industry

How Thin Film Evaporators Work





An inherently simple device, the LCI agitated thin film evaporator (also commonly referred to as a "wiped film evaporator") consists of two major assemblies: a heated body and a rotor.

Product enters (1) above the heated zone and is evenly distributed over the unit's inner surface by the rotor. As the product spirals (2) down the wall, bow waves (3 in illustration above) developed by the rotor blades generate highly turbulent flow, resulting in optimum heat flux and mass transfer.

Volatile components are rapidly evaporated. Vapors flow either counter-currently (4) or co-currently (5) through the unit, depending on the application. In both cases, vapors are ready for condensing or subsequent processing.

Nonvolatile components are discharged at the outlet (6). Continuous washing by the bow waves minimizes fouling of the thermal wall where the product or residue is concentrated most.

The combination of 1) extremely short residence time, 2) narrow residence time distribution, 3) high turbulence, and 4) rapid surface renewal permits the LCI thin film evaporator to successfully handle heat-sensitive, viscous and fouling-type fluids.

Wiped Film Evaporators / Short Path Evaporators

Wiped Film Evaporator is designed to handle challenging evaporating requirements with materials that are heat-sensitive, highly viscous, or of low thermal conductivity. This technology involves separating volatile compounds by introducing a mechanical agitated thin film of feed material to a heated surface.

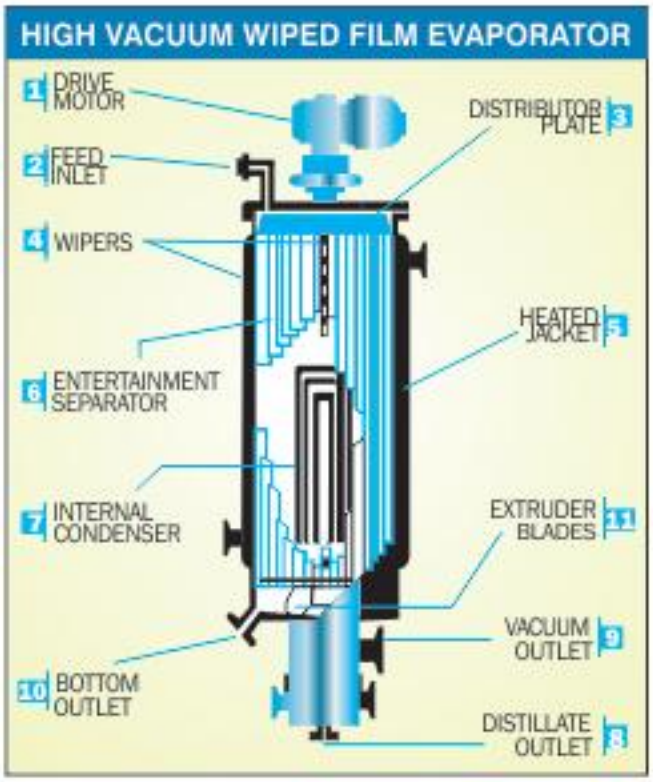
It is recommended for concentrating, separating, refining, decolorizing & deodorizing, & offers broad product development opportunities to the chemical, pharmaceutical, polymers and food industries. Typical products handled include fatty acids, fatty amines, tall oil, fruit juices, esters, plasticizers, rocket fuels, urea, etc.

Material of Construction

Stainless steel, Boiler Quality/Carbon steel for product-contact surfaces. The Wipers will be of Graphite.

How it Operates

Feed material enters through inlet , passes onto the distributor plate, then through four evenly spaced weirs onto the internal heated wall. Rotating slotted wipers spread the feed material into a uniform thin film and continuously move even highly viscous materials down the heated wall. Vaporized material passes through the entrainment separator and condenses on the internal U bundle condenser. Distillate flows out the distillate outlet and non-condensables flow out through the vapor outlet. The bottom, or residue, continues collector and flows out the residue outlet. Droplets of liquid caught by the entrainment separator flow down and off the separator into the residue collector. Extruder blades , mounted on the bottom of the rotor assembly, mechanically push the residue to the residue outlet.



Tube inserts of a falling film evaporator

Benefits

Short retention time eliminate product degradation.

- Low hold-up
- Floating wiper elements maintain thin film.
- Vacuum operation improves unit efficiency.
- Low maintenance, reduced downtime and optimal running costs.
- Energy saving features.

Semmathi Engineering

Manufacturers of Lubricating Oil and
Used Oil Recycling Plant Equipments

Wiped Film Evaporators Machinery

Office :
6/2, Kamarajar Street, Katabomman Nagar, Vengadamangalam,
Ponmar Post, **CHENNAI – 600 127**

Factory :
Plot No. 8-A, SIDCO Industrial Estate, Ammanur Village,
(Opp. To Court), **ARAKKONAM – 631 002**