



VTA Verfahrenstechnische Anlagen GmbH & Co. KG

Thin-film and Short-path distillation plants

What is it?

Thin film distillation is a continuous process of thermal separation, at low pressure, at low temperature and at low residence time of heat sensitive products.

How does it work?

In a thin-film evaporator the product to be treated is distributed in the form of a thin layer on the inner surface of a tube inside which there is a suitable rotor which creates a high turbulence. The necessary heat is transmitted through the tube surface to the evaporation process, which is carried out under vacuum which can reach values of 0.001 mbar a. The vapors of the low-boiling components which are generated are condensed on the cold pipes of a condenser, placed outside the evaporator (thin film) or inside it (short path).

When is this thecnology necessary?

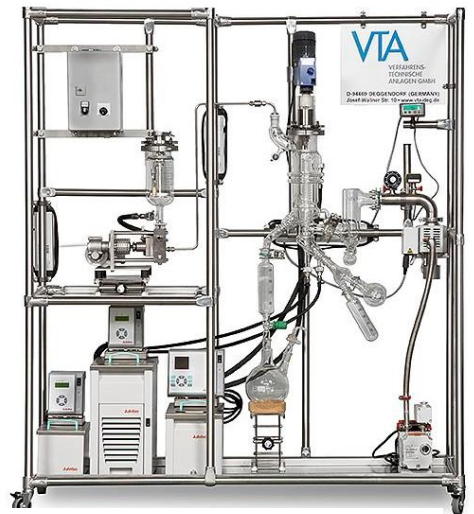
It is necessary to use it when treating heat sensitive products which otherwise would suffer degradation if exposed to high temperatures and for long residence times.

Which are the fields of use of this thecnology?

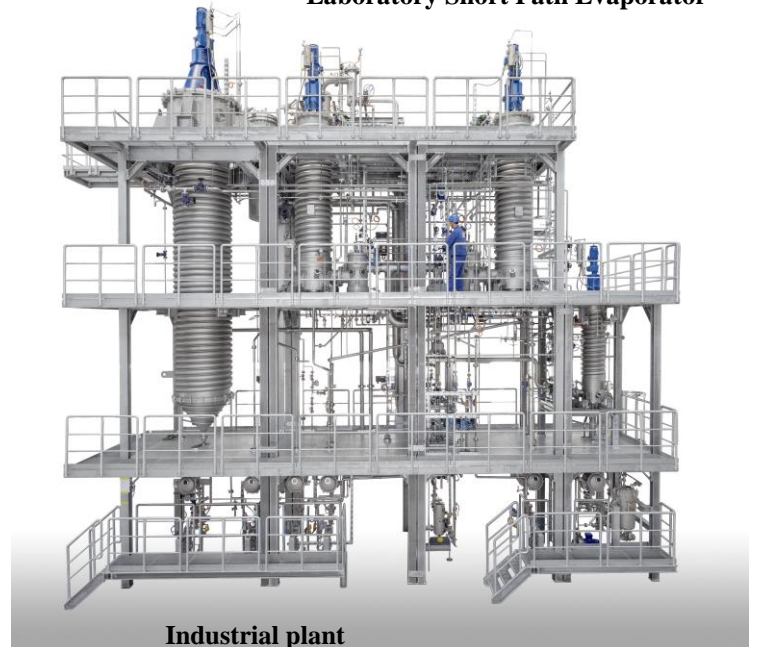
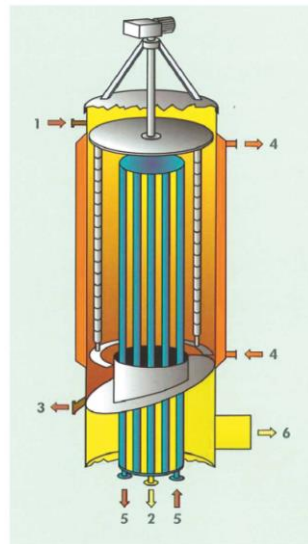
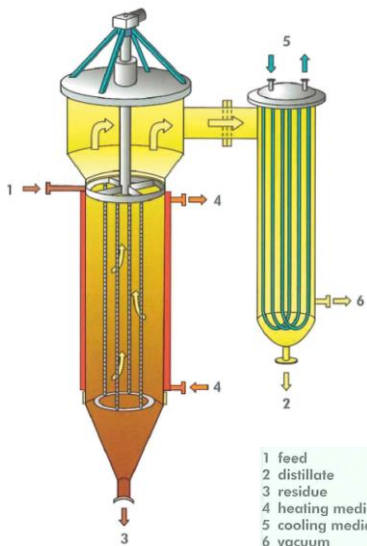
VTA plants are used for purification, concentration, removal of solvent residues, bleaching and drying of products in various industrial sectors: chemical, pharmaceutical, food, cosmetic, biotechnological, vegetable, nutraceutical, oil-gas.



Laboratory Thin Film Evaporator



Laboratory Short Path Evaporator



Industrial plant

VTA thin-film and short-path distillation plants features:

- Continuous process;
- High turbulence in a wiped film for high mass and heat transfer
- Short residence time for low thermal stress of the products
- Evaporation in one pass, no circulation
- Small film thickness; no hydrostatic height

- No product fouling on the heated evaporator wall due to high turbulence of wiped film
- High turndown ratio, high flexibility for variation in requirements
- Distillation of high viscosity products by special designed wiper systems
- Low operating pressure to 10-3 mbar to decrease boiling temperature

Applications

Chemical industry:

- Distillation of chemical base materials, e.g. high molecular alcohol, alkane- di- and polyols, lactames
- Gentle distillation of lower or higher molecular unsaturated compounds, e.g. mono or poly unsaturated acids
- Cleaning of high molecular aromatic compounds, e.g. polyphenyl compounds
- Solvent separation from organic compounds, e.g. from silicone oils
- Removal of monomers, e.g. from polyols and polyester
- Concentration of organic esters
- Cleaning and concentration of aromatic amides
- Cleaning of higher boiling solvents, e.g. DMSO
- Cleaning and recovery of fatty acids
- Separation of organic solvents from acid chlorides
- Concentration and cleaning of liquid crystals

Polymer industry:

- Separation of solvents from polymers
- Concentration of isocyanides
- Cleaning of softeners
- Separation of monomers from oligomers
- Fractionation of oligomers

Pharmaceutical industry:

- Distillation of pharmaceutical effective substances and intermediate products
- Recovery of mother liquor from the production of effective substances
- Concentration of carbohydrate deviates
- Concentration and cleaning of organic acids
- Drying of synthetic resins for dental medicine
- Water and solvent removal from high molecular substances
- Performance of reactions during distillation

Food industry:

- Winning of highly concentrated lactic acid
- Concentration of tocopherol acetate and oryzanol
- Concentration of monoglyceride
- Separation of free fatty acids from vegetable oils
- Concentration of Ω -3-fatty acids from fish oil
- Cleaning of dimer fatty acids
- Separation of pesticides from vegetable oils

Cosmetic industry:

- Deterpenizing and concentration of etheric oils
- Cleaning of wool wax and wool wax alcohols
- Removal of pesticides from cosmetic base substances

Petrochemical industry:

- Distillation of heavy oils
- Distillation of vacuum residues
- Recovery of waxes from heavy oils

Painting industry:

- Separation of solvents from paints and reactive paints, e.g. TDI removal



Contact us

MITec Srl – Mr. Enrico Maestri PE

24129 Bergamo (Italy) - Via San Lorenzo10

+39/035219584 - +39/035270381- +39/3487494783

e-mail: info@mitec-eng.it – Web Site: <http://www.mitec-eng.it>