



Short Path Distillation & ATFE

Safe and efficient purification of thermally sensitive products



The short path distillation unit (SPDU) and Agitated Thin Film Evaporator (ATFE) are compact units that are used for the gentle separation of products that are heat-labile, viscous or have high boiling points. The process engineering team at Sai Life Sciences utilizes these cutting edge technologies to enhance safety and scalability of temperature-sensitive products. These units excel at precision purification and separation under extreme vacuum conditions, effectively minimizing heat exposure and preventing decomposition of the substances involved.

Highlights

- Handled products for leading pharmaceutical innovators
- Isolated components of heat sensitive liquids and products with very high boiling points
- Achieved enhanced quality compared to conventional mode
- Proof of concept (POC) completed for specific products which are difficult to handle in a batch mode
- Both SDPU and ATFE are equipped high efficient Vacuum systems and dedicated heating and cooling system along with temperature and vacuum sensors, feed control with a peristaltic pump.
- Improved purity and recovery of the product
- Good turndown capability with minimal product hold-up
- Closed and safe operation
- Self-cleaning/wiping of the heat transfer surface
- SPDU operates at a max operating temperature of up to 180°C and pressure up to 0.001mbar and has a Heat Transfer Area of 0.1m²
- Ensures minimum pressure drop permitting high vacuum operation at a low product temperature
- Lowers the boiling temperature and allows for gentle distillation of heat- sensitive or high boiling products with a short residence time
- Minimum product hold-up in the unit

Capabilities and infrastructure

- Pilot 1.0 to 3.0L per hour
- Involves physical separation, ensures protection from pollutants and inhibits degradation or loss of active ingredients
- AFTE operates at a max operating temperature of up to 180°C at 1mbar pressure and has a Heat Transfer Area of 0.3m²
- Maximum rotor speed of 120rpm
- Distillation rate of maximum 3.0 LPH
- Short residence time in the heating zone
- High heat transfer coefficients due to turbulence by the rotor
- Continuous operation with minimal loss of active ingredients
- Minimal scale formation on the heat transfer surface due to the intense agitation of the liquid film with a lesser quantum of product hold-up



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