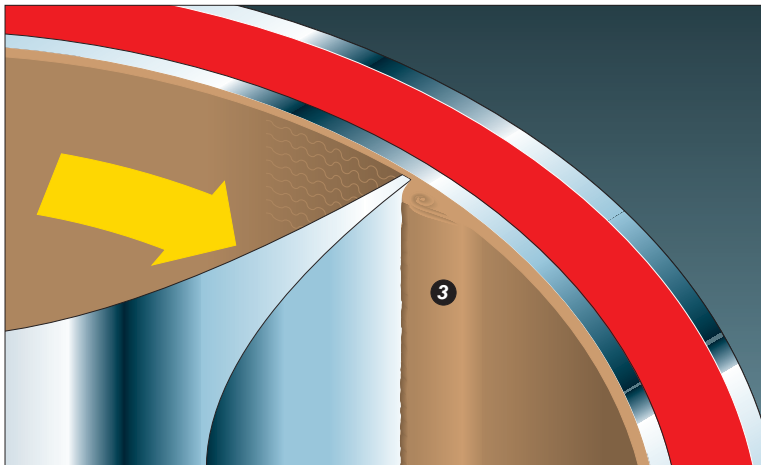


How Agitated Thin Film Separation Works



An inherently simple device, the LCI agitated thin film processor 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 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 countercurrently 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 product or residue is concentrated most.

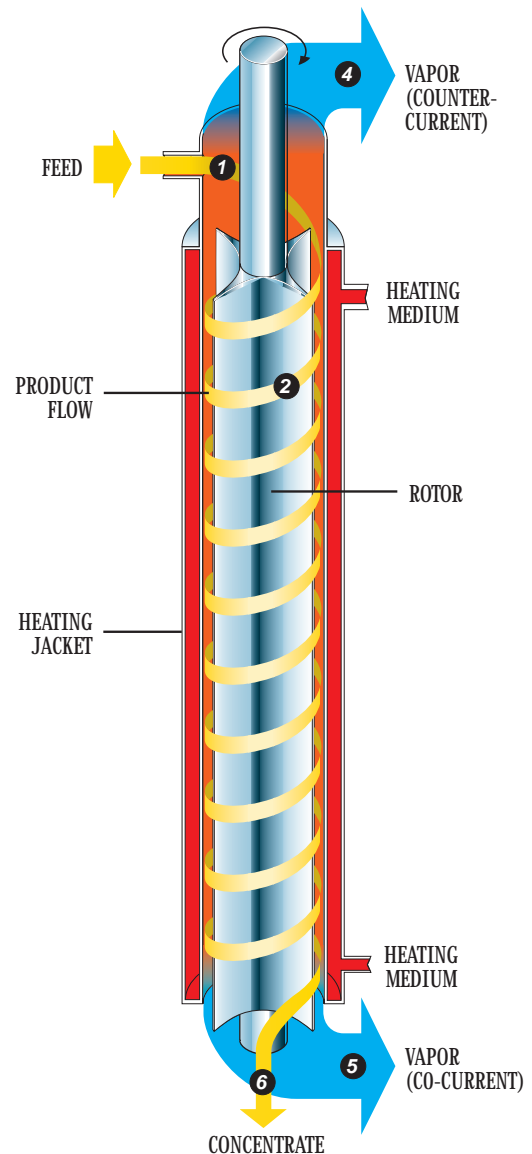
The combination of ■ extremely short residence time ■ high turbulence
■ narrow residence time distribution ■ rapid surface renewal

permits the LCI thin-film evaporator to successfully handle heat-sensitive, viscous, and fouling-type fluids.

HEAT TRANSFER RATE VS. PROCESS PARAMETERS

System design must consider many variables such as feed rate, temperature, rotor speed, blade clearance, wall thickness, construction materials, and the physical and thermodynamic properties of processed materials.

These variables are interrelated in how they affect performance. Selecting the optimum combination to best solve your processing problems is just one of LCI's valuable services.



CONCEPTUAL REPRESENTATION OF A VERTICAL AGITATED THIN-FILM PROCESSOR

