

Course Fee: US\$650

Reboilers are arguably the most troublesome auxiliary components in a distillation system. Reboiler failure or underperformance can lead to column malfunction and/or shutdown with severe economic consequences. In many cases, problematic operation can be identified and avoided in the design phase by correctly modeling the units in *Xist*, but this is contingent on the user's ability to specify and interpret such cases. Attend this short course to practice modeling and review challenging reboiler designs in *Xist* through a series of interactive case studies.

Suggested Participants

Xist users who design, troubleshoot or evaluate reboiler performance

HTRI Software

This course will make use of the following HTRI software: *Xchanger Suite*[®] component *Xist*[®]. All training materials are based on the current software version.

Course Credits: 6 hours (PDH/CEU)

Outline

I. Types of Distillation Column Reboilers and Common Causes of Malfunction

- Distillation column reboilers
 - Internal/stab-in and kettle reboilers
 - Recirculating thermosiphons
 - Once-through thermosiphons
 - Forced flow reboilers
- Causes of malfunction
 - Fouling
 - Transition/film boiling
 - Mist flow
 - Circulation
 - Column liquid level
 - Inerts
 - Condensate
 - Instability
 - Buildup of heavies

II. Turndown in Vertical Thermosiphons with Condensate Flooding in *Xist*

- Turndown operation and impact
- Turndown limits and strategies
- Specifying condensate flooding in *Xist*

III. Troubleshooting Once-through Reboilers in *Xist*

- Once-through vs. recirculating thermosiphons
- Specifying a once-through reboiler in *Xist*
- Operational problems

IV. Troubleshooting Kettle Reboilers with Piping in *Xist*

- Kettle reboiler operation
- Modeling kettles in *Xist*
- Entrainment