

**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*<sup>®</sup> component *Xist*<sup>®</sup>. 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