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