

100.0 PURPOSE AND SCOPE

101.0 Purpose

This testing procedure offers methods of conducting and interpreting performance tests on tray distillation columns. Such tests may be made to accumulate reliable data in one or more of the following areas of interest: tray efficiency, capacity limitations, energy consumption, or pressure drop considerations. These data are useful for troubleshooting, for debottlenecking, for new designs, for correlations, and for determination of the operating range of a column as well as the optimum operating conditions. These data may also be required for an "acceptance test."

102.0 Scope

Rather than compulsory directions, a collection of techniques is presented to guide the user. Emphasis is placed on principles rather than on specific steps.

This procedure covers continuously operated tray distillation columns. The tray columns include all types of trays, with or without downcomers for liquid. Testing of auxiliary equipment is not included, even though it may limit column capacity. Other established procedures are available for testing auxiliary equipment.

Batch distillation columns are covered in that their performance can be tested best by running them under steady state conditions, either at total reflux or with the overhead returned to the kettle continuously. The principles outlined herein for continuous columns will then apply.

103.0 Liability

AIChE and members of the various committees involved make no representation, warranties or guarantees, expressed or implied, as to the application or fitness of the testing procedures suggested here for any specific purpose or use. Company affiliations are shown for information only and do not imply procedure approval by the companies listed. The user ultimately must make his own judgment as to the testing procedures he wishes to utilize for a specific application.

200.0 DEFINITION AND DESCRIPTION OF TERMS

201.0 Flow Quantities (Refer to Figure 802.1.)

201.1 *Feed* is the material to be separated, including multiple feed streams.

201.2 *Bottoms* is the high-boiling product leaving the bottom of the column (or the reboiler).

201.3 *Distillate* is the product distilled overhead. It may leave the distillation system as a vapor, liquid, or combination of both.

201.4 *Side-stream product* is a product withdrawn from an intermediate section of the column.

201.5 *Overhead vapor* designates the vapor from the top of the column and includes material to be condensed for reflux. It is the combined distillate and overhead reflux.

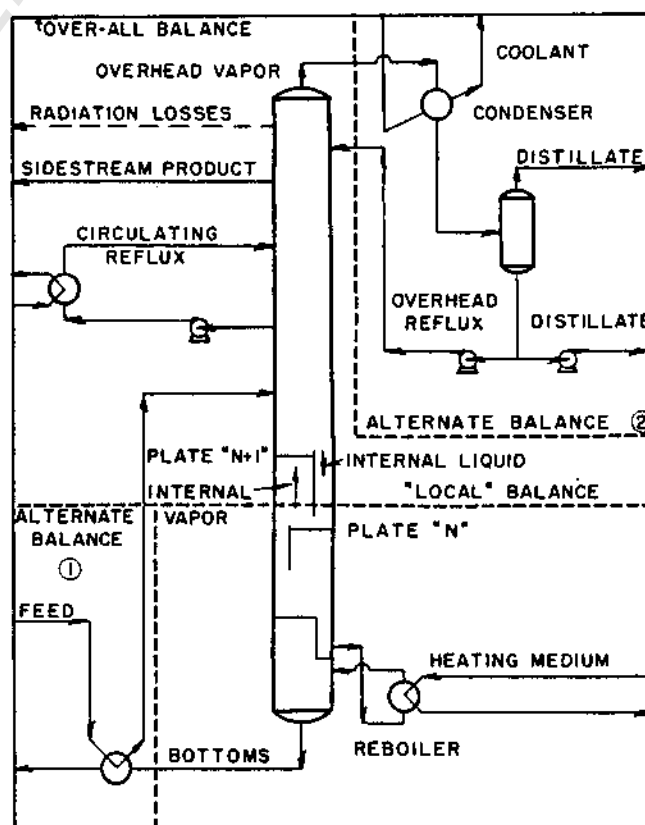


Figure 802.1 Enthalpy balance diagram.