

DISTILL 2.1 is an EXCEL-based Version 2.1 computer program that has been developed for the rapid estimation of the hydraulic and mass transfer performance of sieve trays, baffle trays, CoFlo (Trutna) trays, random packings, and structured packings operating under distillation conditions. **DISTILL**, which replaces two earlier programs (**TRP** and **PRP**), provides a computational package of rating procedures for predicting the performance of selected contacting devices. While developed for the analysis of existing trays or packings, the program may also be used as a design tool for sizing new columns. For one familiar with EXCEL the program is easy to use. While written with Excel 97, it is compatible with earlier (95) and later (2000) versions of Excel.

DISTILL utilizes six worksheets: Data, Database, Packing, Tray, R-Packing, and R Tray. Input data are provided in Data while the calculated results are presented in the R-Packing and R-Tray worksheets, depending on the chosen device. Calculations are performed in Packing and Tray. If packing is selected, calculations are executed in Packing and the results may be observed in R-Packing. If tray is selected, calculations are performed in Tray worksheet and results are shown in R-Tray. The properties for structured and random packings are stored in Database. The program has a color code for input and output data. Dark blue is used for general input data, green is for trays, light blue for packing, and red for warning and errors. All calculated results are shown in yellow.

The required input data include physical properties (for both phases: molecular weight, density, viscosity, diffusion coefficient and surface tension) and operating variables (pressure, temperature, slope of the equilibrium curve, liquid and vapor flow rates, and either fractional flooding or column diameter). The remaining data are inserted through drop-off menus such as the selection of internal device, required models for hydraulic and mass transfer calculations, and working units. Additional data will be required when tray is selected (depending on the type of tray and specific geometry).

DISTILL provides the user with a number of modeling options. The available models for hydraulic and mass transfer calculations. **DISTILL** could be used to answer the question "What would happen if...?". One can select a different internal device and by changing to either R-Packing or R-Tray, one can observe the comparative results. One can also vary a specific property (*e.g.*, diffusion coefficient) to observe its effect on the predicted performance (*e.g.*, HETP). In addition, experimental data obtained from the large-scale SRP distillation system will be used to validate the models in **DISTILL**.

Version 2.1 incorporates new packing constants developed during by Pedro Sanchez who determined pressure drop constants of a wide variety of random and structured packings.