MANCHESTER 1824
The University of Manchester

COLSEQ Overview

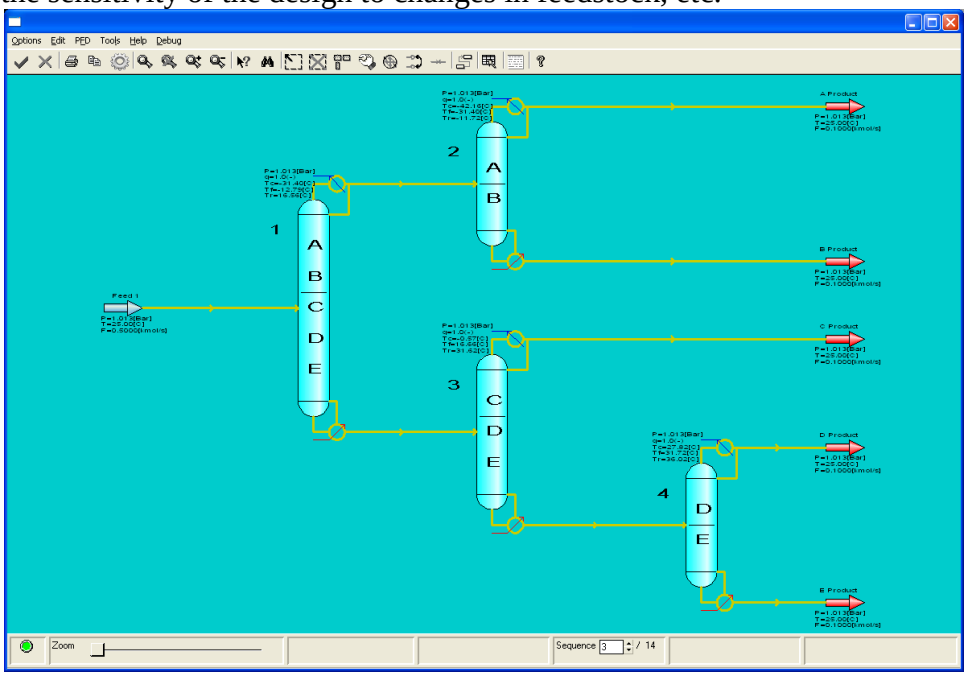
COLSEQ is the software package used for the design of distillation systems.
Physical property calculations can be carried out using its own facilities or through an interface to simulation software packages.
Sequences of simple or complex columns can be screened and optimised.
Simple columns (including sloppy separations), prefractionators, side-strippers, side-rectifiers and fully thermally coupled (Petlyuk and dividing wall) columns can all be studied. **COLSEQ** identifies the most appropriate combination of these for a given separation problem. Complex column designs that use stripping steam can also be studied. The energy integration implications of any given design can be investigated. **COLSEQ** also has facilities for the sequencing of distillation systems for azeotropic mixtures.

Issues addressed by **COLSEQ** include:

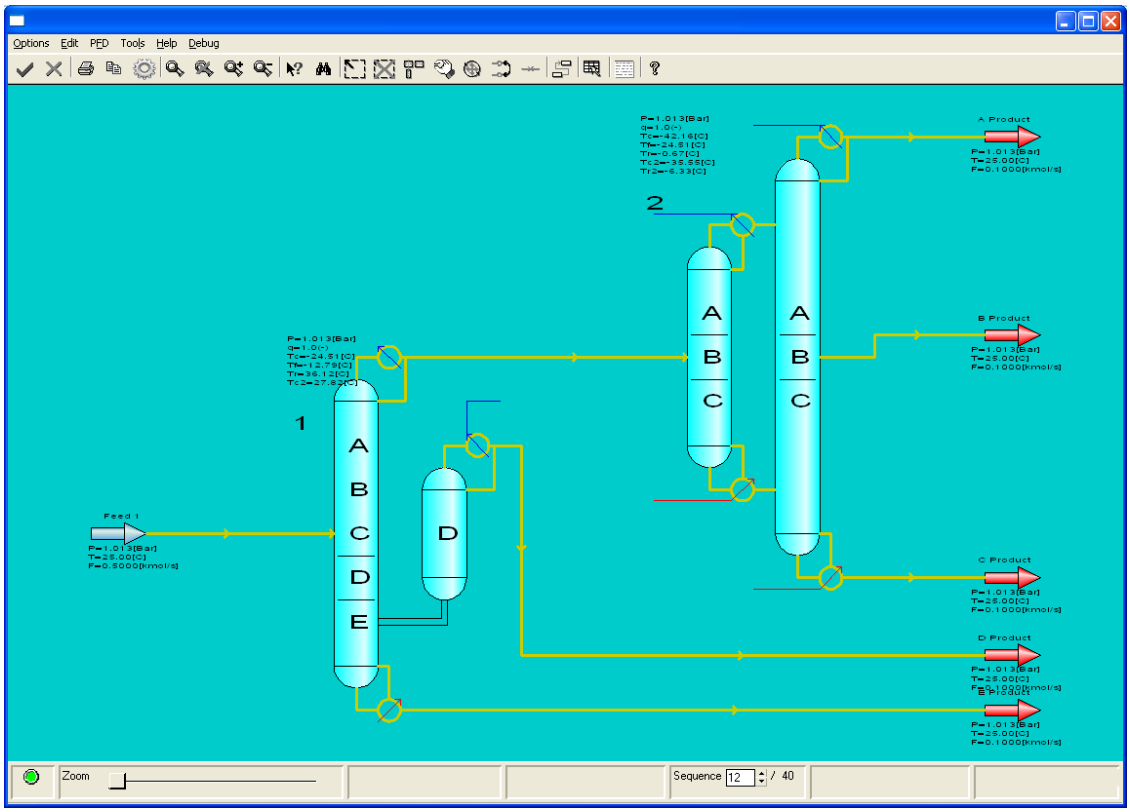
- Sequencing of simple distillation columns
- Sequencing of complex column arrangements
- Simultaneous optimisation of pressure with configuration
- Heat integration of distillation sequences

Distillation System Design

COLSEQ can be used to screen sequences of simple and complex columns. The software identifies the most appropriate arrangement of simple columns (including sloppy separations), side strippers, side rectifiers, prefractionators, and fully thermally coupled (Petlyuk and dividing wall) columns. Column pressures are optimised simultaneously with configuration. Optimisation can be based on vapour load, energy consumption or utilities costs. This unique facility within COLSEQ allows novel distillation system designs to be identified and the interactions between the design of the distillation system and the utility system servicing it to be examined, together with the sensitivity of the design to changes in feedstock, etc.



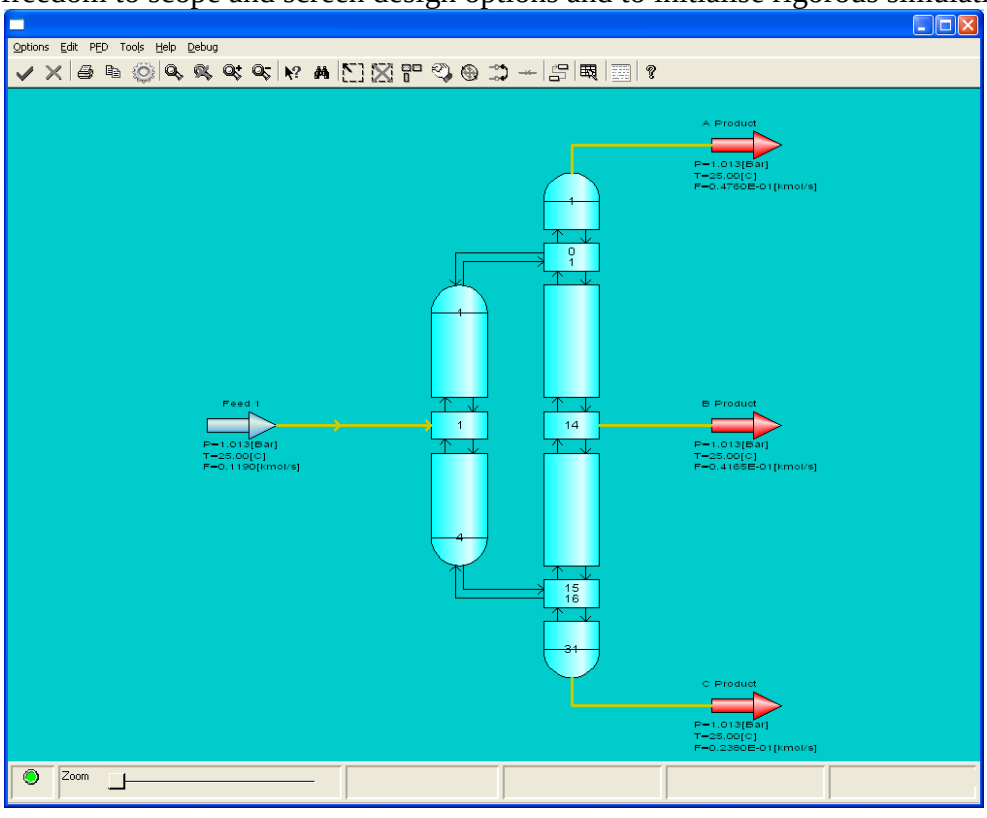
Sequence design using simple columns



Sequence design using simple and complex columns

Dividing Wall Distillation

Dividing wall distillation feature additional degrees of freedom when compared with a conventional distillation. **COLSEQ** provides a facility to optimise these degrees of freedom to scope and screen design options and to initialise rigorous simulation.



Heat Integration of Column Sequences

The energy integration implications of any given design can be considered within **COLSEQ**. Alternatively, **COLSEQ** can export data for the reboilers and condensers of a sequence to **STAR** or **SPRINT** so that the heat integration of a given sequence can be investigated in more detail.