

## COLPROF Overview

**COLPROF** 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.

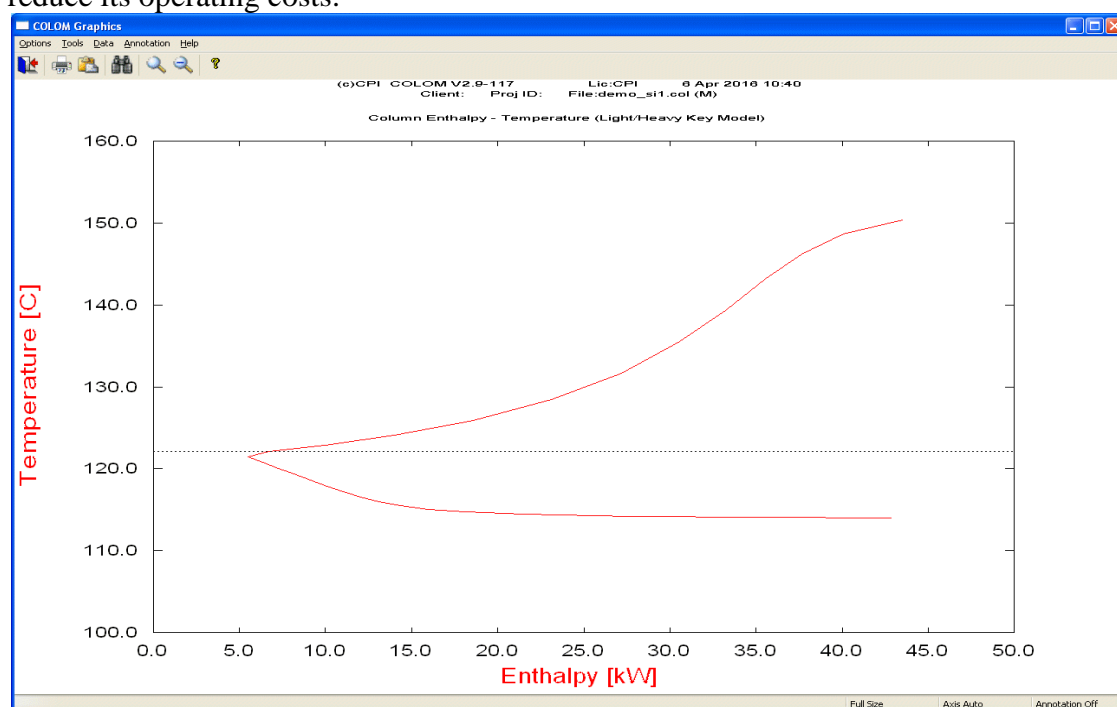
The thermodynamic efficiency of individual columns can be investigated through temperature-enthalpy and temperature-exergy profiles. These can be used for optimising feed condition and for improving efficiency through the use of inter-reboiling and condensing. Debottlenecking for increased capacity can be carried out using hydraulic analysis.

Issues addressed by **COLPROF** include:

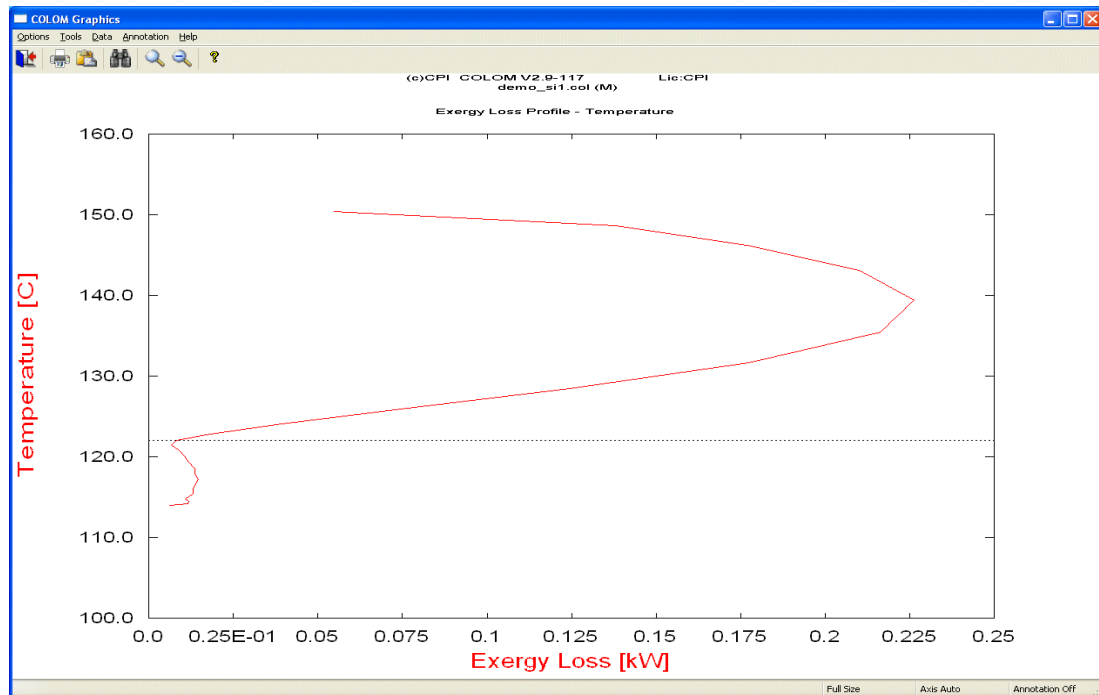
- Generation of temperature-enthalpy profiles
- Generation of temperature-exergy profiles
- Retrofit for increased throughput

### Enthalpy and Exergy Profiles

**COLPROF** can generate temperature-enthalpy profiles for a distillation column. The resulting profile can be used to assess the scope for inter-reboiling and inter-condensing. Two methods are available in **COLPROF**. The first uses the results from a column simulation to generate a reversible column profile. The second method generates a column profile that has minimum heat and mass transfer driving forces included in its construction. The exergy loss profile presents the driving force distribution in the column and can be used to identify column modifications such as feed conditioning and side reboiling/condensing. The exergy profile directs modifications to improve the thermodynamic efficiency of the column and hence reduce its operating costs.



Temperature – Enthalpy profile for a column



Temperature –Exergy profile for a column

### Retrofitting for Increased Throughput

Distillation columns are often the bottleneck when increased throughput is required in a process. **COLPROF** incorporates a hydraulic analysis that allows column bottlenecks to be identified and options explored for increased throughput.

