

INTERNAL REFLUX DISTILLATION

The internal reflux distillation technique is based on a particular type of column which combines mass transfer and heat transfer, necessary for the fractionation of mixed vapours generated by boiling of a multi-component liquid mixture, in an equipment basically made of a number of vertical finned coils, internally cooled by a cooling fluid.

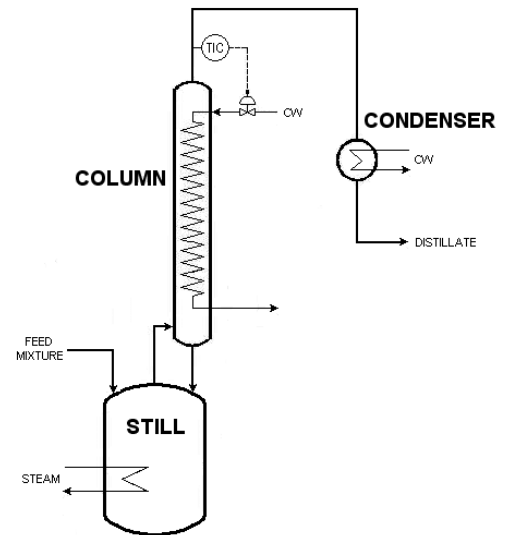
The heat transfer thus carried out, thanks to a specific surface of about 500 m²/m³, is associated to an extremely efficient mass transfer, also advantaged by the uniform wetting of the surface at all points.

The technology results particularly efficient in batch distillation of compounds where it is required a good quality of distillate, as well as in solvent recovery from complex mixtures, where other available techniques result inadequate or bring to economically inconvenient recovery.

With the Polaris column, it is possible to design the recovery process according to various modes, adopting case by case the more convenient one for the mixture to be treated and depending on the quality specifications of products:

- distillation at pressure less, equal or more than atmospheric
- distillation under high vacuum
- azeotropic distillation
- extractive distillation
- de-hydration by distillation with phase separation

For each of the above mentioned processes, it is possible to fractionate with variable or constant internal reflux, depending on convenience to be evaluated case by case.



BENEFITS OF INTERNAL REFLUX DISTILLATION

- very high recovery yield
- reduced heads/tiles/intermediate fractions
- strongly reduced start-up time
- high purity of distillate
- easy operation
- fully automatic process recipes
- complete cleaning in place
- compact installation



TYPICAL APPLICATIONS

- Solvent recovery
- Waste reduction
- Recovery of solvent mixtures from waste water
- Cryogenic distillation
- Reactor distillation

ADVANCED SEPARATION TECHNOLOGIES

Polaris is a leading supplier of turn-key systems for the separation and recovery of organic compounds, based on innovative proprietary technologies.

Polaris is a private company established in 1996. Since then the Company core business has been the design, the construction and the turn-key supply of plants for the chemical and pharmaceutical industry in Italy and abroad, and effluent treatment plants for process industries.

Most units are fully prefabricated, for better construction control and cost reduction, in Polaris own 4000 m² workshop.

The Quality System complies with the norm ISO 9001:2000.

It is the company policy to pursue innovation in the processes and technologies. This approach gave, as a return, the development of several new technologies and patents.

To date Polaris has implemented successfully more than 150 tailor made plants, operating in many European and extra-European countries.

