**Features**

SUPERHIDIC® provides excellent energy saving of above 50% compared to conventional distillation systems in various industrial applications. SUPERHIDIC® offers attractive economics without utilizing special equipment, but by applying well-proven technology related to distillation and heat transfer. Moreover, good maintainability can be achieved with SUPERHIDIC®.

**Basic Concept or Summary**

SUPERHIDIC® realizes the concept of the Heat Integrated Distillation Column (HIDiC), which has been recognized as the ultimate energy saving distillation system, in a simplified manner.

In developing SUPERHIDIC®, the following expertise obtained using a new thermodynamic analysis method was applied:

- Internal heat exchange is not necessarily needed in the every stage of the column, but can be done discretely.
- Since the amount of internal heat exchange differs depending on the composition inside the column, internal heat exchange should be performed accordingly.
- Most often, stages having the similar demand of heat duty are not at the same elevation when the rectifying and stripping sections are set in parallel.
Excellent energy saving and cost saving can be expected for the following conditions by introducing SUPERHIDIC® in either existing column modification or new installations.

- Temperature difference between the overhead and the bottom lower than 80°C
- Distillation columns with a large utility cost reduction potential
- Large scale reboiler and/or condenser duty
- Process units, which have been so far confirmed for the SUPERHIDIC® application with excellent energy conservation

The figure below shows processes which are confirmed to be suitable for the application of SUPERHIDIC®.

SUPERHIDIC® has been awarded the "Nikkei Global Environmental Technology Award Excellence Award" from the Nikkei, Energy Conservation Grand Award (METI Prize), SCEJ Award for Outstanding Technical Development, JPI Award for Technological Progress, etc. for its excellent energy-saving performance, uniqueness and potential contribution to low carbon society. It is sometimes not easy to find an appropriate application of SUPERHIDIC because your column may be involved in heat-integration among process streams and/or the steam level of reboiler is in excess. To find the way to apply SUPERHIDIC appropriately, TOYO has developed HERO (Hybrid Energy system Re-Optimization) which can find the global optimum for both process and utility plants simultaneously by utilizing mathematical optimization.

### Installation in Practice or Schedule

**Domestic**
Commercial unit in operation at a petrochemical plant.
Expanding our business towards the domestic refinery, petrochemical and chemical plants.

**Overseas**
Expanding our business for international refinery, petrochemical and chemical plants. In addition, promoting sales along with a partner company with worldwide sales networks.

**Contact:** Toyo Engineering Corporation
Environment and Energy Management Development Department
2-8-1 Akanehama, Narashino-shi, Chiba, Japan
Tel: +81-47-454-1571 Fax: +81-47-454-1718
URL: http://www.toyo-eng.com E-mail: superhidic@toyo-eng.com