



## **Design of Heat Exchanger Networks in Heat Integration of CDU and HVU using a Pinch Design Method**

**Sintha Soraya Santi, Renanto\* and Ali Altway**

**Chemical Engineering Dept. – Sepuluh Nopember Institute of Technology  
Surabaya 60111, Indonesia**

**Abstract:**Energy is a critical issue was never stopped to be discussed. The efforts of energy saving have always been conducted. Heat integration is one of the techniques used to reduce the energy requirements of processes with high energy consumption, especially in refinery plant. Heat integration can be conducted in a single unit or multiple units. In this paper we investigated the heat integration in the separation units of an oil refinery, i.e., a Crude Distillation Unit (CDU) and a High Vacuum Unit (HVU).

The result obtained that the simultaneous heat integration of CDU and HVU was better than that of sequential one. The heating duty of simultaneous heat integration (CDU and HVU) reduced to only 8 % of the heating duty of sequential heat integration. The best  $\Delta T_{min}$  value at 10 K both of sequential and simultaneous heat integration. The cooling duty obtained for the simultaneous heat integration was 0.011 MW.

In this paper, splitting of streams was applied in the simulation to facilitate heat exchange to keep the minimum heating and cooling duties.

**Keywords:** Heat Integration; Sequential; Simultaneous; Heat Exchanger Networks; Stream splitting.

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