

Revamp oil refineries to combat fouling: A frontier to save environment and energy

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Abstract

Heat exchangers play a crucial role in most chemical, food processing and power generating processes. However due to the nature of fluids involved in the heat transfer process, deposits tend to form on the heat transfer surfaces which would profoundly reduce the efficiency of the apparatus. Energy lost due to fouling of heat exchangers accounts for at least ۲% of the total world energy production per year. The overwhelming proportion of these losses is compensated by additional consumption of fossil energy carriers. Not surprisingly, this comes with an enormous energy price-tag as well as considerable green-house gas emissions, acidification of water resources and release of chemical fouling inhibitors. The present study underlines the significance of fouling, in particular, in the pre-heat trains in oil refineries. Economic and environmental impacts of fouling are discussed and a case study for IR Iran is also presented.

Keywords: Fouling, mitigation, heat exchanger, pre-heat train

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