

Energy Saving and Management in the Process Industries with the Aid of Recent Development in Science and Technology

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Editorial

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Editorial

In the wake of growing enhancement in energy demand, Scientists and Engineers are concerned about developing newly efficient and environmental friendly equipment for the process plants. Petrochemical plants use huge quantities of heat transfer liquid for cooling or heating of fluids in the process stream. Thermodynamic energy recovery has optimistically done in the process plants with the stepwise processing of the raw materials. Cooling and heating of fluids are performed in heat exchangers and lots of research works have conducted by altering process parameters, equipment materials etc. Recently some researchers are involved in altering flow passage and developing most efficient heat exchanging liquids for enhanced heat transfer performance.

Separation flow being introduced for augmentation of heat transfer and the flow passages are reconfigured by introducing multiple step flow to enhance heat transfer. These passages could introduce heat transfer enhancement. Heat exchanger performance enhancement could be introduced in the coolers and heaters. In molds the separation flow being introduced for enhanced heat transfer and prolonging continuous operation.

However enhanced performance heat exchanging liquids are prepared from dispersion of metallic or carbon nanoparticles into the conventional cooling liquid as the

base fluid. Augmented heat transfer and better performance of heat exchangers will retard energy consumption and greenhouse gases.

In process industries heat exchangers are experiencing fouling, the deposition of undesired materials on heat exchanger surfaces with the retardation of heat transfer. Efforts being given by the scientists to retard rate of fouling and to prolong continuous operation of the heat exchangers. Research results have revealed the addition of additives to the heat exchanger liquids, heat exchanger surface modification, and process parameter alteration all plays vital effects on retardation of fouling. Current research emphasizes on green methods of fouling mitigation for prolonging the continuous operation of the heat exchangers.

Environmental pollution is firstly extending its jaws and a noticeable share is contributed from the petroleum and chemical process plants. Maintenance, trouble shooting, processing, exhaust, drainage all involved with the environment. Updated pollution control measures, generation of green energy and environmental protection binding laws could amicably settle all these matters.

Considering exploded demand of power consumption, threat of global warming and misuse of power due to

inefficient heat recovery equipment, Scientist and Engineers are needed to introduce joint effort for designing efficient green heat exchangers for process plants. Petroleum and petrochemical Engineering Journal (PPES) has taken the responsibility of disseminating innovative research, scientific and economically viable

thoughts for improvement of process, equipment, pollution control and efficient maintenance, new avenues of energy sources and economic and proper utilization of present resources to the door steps of concerned persons and mankind.