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Process Intensification and its Applications - A Critical Review

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Abstract : The problems faced by the various industries are high energy consumption which further increases the cost of production followed by reduced productivity and conversion, longer residence time, and pollution caused by industrial waste. Many researchers have found various alternative pathways to overcome these drawbacks. The same products were obtained in a better way by process intensification. Any process can be intensified either by introducing entirely a new process or by combining two or more conventional methods to form a new hybrid process e.g. reactive distillation, micro-reactors, etc. Due to an increase in population and less availability of land, reducing the chemical plant footprints is highly appreciable which is possible by process intensification. In this paper, we have reviewed the majority of the processes that have been intensified into a new process such as bioprocesses, extraction, distillation, leaching, Biofuels production, Desalination, etc.

Key words : Intensification, cost-optimization, sustainability, energy-efficient processes..

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