Operation of irreversible series reactions in pressure swing reactors
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References


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In conclusion, the performance of the pressure swing reactor containing a mixture of catalyst and sorbent has been compared to two traditional reactors: (i) a steady state plug flow reactor with catalyst only and (ii) a system with ex-situ pre-separation consisting of a pressure swing reactor (with sorbent only) for separation and a plug flow reactor in series. Performance is compared with respect to conversion, integral reactor selectivity, product-purity and productivity.

By removal of a desired intermediate product from the reactive phase in a series reaction, over-reaction to an undesired by-product is suppressed. However, the desired product is not obtained directly but it remains in the reactor vessel in an undesired state. We have shown in Chapter 2 that the regeneration mode employed is crucial in selectivity improvement. Only for co-current desorption and plug step, the recovery of the desired
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