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A Guide on the Industrial Application of Rotating Packed Beds

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Highlights

- Evaluation of key advantages of RPBs in industrial applications.
- Assessment of technology readiness level (TRL)
- Derivation of decision trees for different applications.

ABSTRACT

Rotating packed beds (RPBs) exploit centrifugal fields in order to improve separations and reactions. The reported advantages of RPBs compared to state of the art equipment for the mixing and contacting of different fluids are significant reductions in equipment volume, corresponding large capacities and improved selectivities. These benefits can be attributed to the intense micromixing of the fluids and the intense internal mass transfer between different phases. Further advantages of RPBs are fast dynamics resulting in a quick achievement of steady state operation, the possibility to process highly viscous fluids and the additional degree of freedom resulting from the variable rotational speed. Although various successful implementations of RPBs on an industrial scale have been reported, conclusive criteria and guidelines for the selection of RPBs are still missing. Consequently, they are seldomly considered during process design. In order to derive explicit criteria that indicate the

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