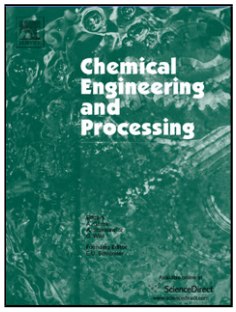

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Intensification of chaotic mixing in a stirred tank with a punched rigid-flexible impeller and a chaotic motor

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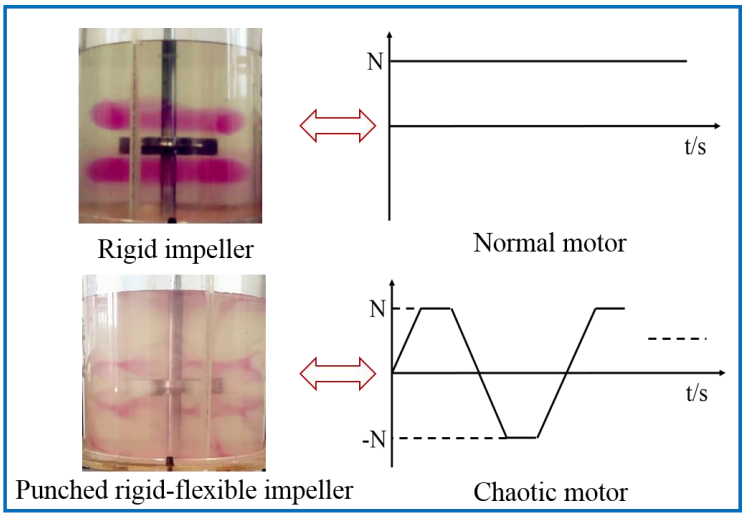
Graphical Abstract



Two doughnut rings have been formed above and below the rigid impeller with a normal motor. These regions remained segregated from the rest of the mixing system, and acid penetrated the segregated regions due to the diffusive mechanisms, not the convective flow mechanisms, to neutralize the base. The presence of the segregated regions would extent the mixing time. The punched rigid-flexible impeller coupled with a chaotic motor was more effective to eliminate segregated regions. Because punched rigid-flexible impeller could a series of high-speed jet flows