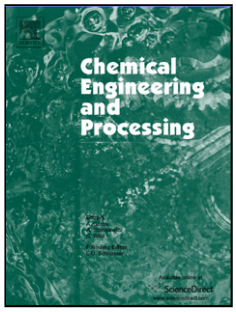

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Energy-saving performance of reactive distillation process for TAME synthesis through multiple steady state conditions

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Abbreviations: 2M1B: 2-methyl-1-butene; 2M2B: 2-methyl-2-butene; C1: first recovery distillation column; C2: second recovery distillation column; inert: inert components; MeOH: methanol; RD: reactive distillation column; TAME: tert-amyl methyl ether; B: bottom flow rate, kmol/h; D: distillate flow rate, kmol/h; F: feed flow rate, kmol/h; P_{top}: pressure of the top of distillation column, kPa; Q_R: reboiler duty, MW; *RR*: reflux ratio; *x*: liquid composition; ε reaction conversion.