

RESEARCH PAPERS

用各向异性代数应力模型数值模拟搅拌槽中的三维全流场

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摘要 In accordance to the anisotropic feature of turbulent flow, an anisotropic algebraic stress model is adopted to predict the turbulent flow field and turbulent characteristics generated by a Rushton disc turbine with the improved inner-outer iterative procedure. The predicted turbulent flow is compared with experimental data and the simulation by the standard κ - ϵ turbulence model. The anisotropic algebraic stress model is found to give better prediction than the standard κ - ϵ turbulence model. The predicted turbulent flow field is in accordance to experimental data and the trend of the turbulence intensity can be effectively reflected in the simulation. The distribution of turbulent shear rate in the stirred tanks was simulated with the established numerical procedure.

关键词 [agitated vessel](#) [anisotropic algebraic stress model](#) [numerical simulation](#) [inner-outer iteration](#) [Rushton turbine](#)

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Numerical Simulation of the Whole Three-Dimensional Flow in a Stirred Tank with Anisotropic Algebraic Stress Model

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Abstract In accordance to the anisotropic feature of turbulent flow, an anisotropic algebraic stress model is adopted to predict the turbulent flow field and turbulent characteristics generated by a Rushton disc turbine with the improved inner-outer iterative procedure. The predicted turbulent flow is compared with experimental data and the simulation by the standard κ - ϵ turbulence model. The anisotropic algebraic stress model is found to give better prediction than the standard κ - ϵ turbulence model. The predicted turbulent flow field is in accordance to experimental data and the trend of the turbulence intensity can be effectively reflected in the simulation. The distribution of turbulent shear rate in the stirred tanks was simulated with the established numerical procedure.

Key words [agitated vessel](#); [anisotropic algebraic stress model](#); [numerical simulation](#); [inner-outer iteration](#); [Rushton turbine](#)

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