

Power Consumption and Hydrodynamics of Rotating Baffled Shaking Cylindrical Vessel

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The hydrodynamics of a rotating baffled shaking cylindrical vessel was studied. When shaking frequency exceeded a critical value, the baffled shaking cylindrical vessel was operated in the out of phase mode and the wave height of liquid free surface in the vessel suddenly decreased. The mixing performance of the baffled vessel was lower than that of the nonbaffled vessel because of the sudden transition of the flow pattern in the baffled vessel from a rotational-wave type to a progressive-wave type at low shaking frequency. The shaking frequency can be correlated with the Froude number and the baffle conditions only, and it did not depend on the Reynolds number.