

DOWN-FLOW BATCH MIXING SYSTEM

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This Sheet Has Been Replaced


Abstract of the Disclosure

5 Improved mixing effectiveness in the mixing of a gas with a
liquid suspension is achieved in a batch mixing system having a
mixing tank with a hemi-toroidal tank bottom which extends between
a radially inner neck portion of the tank to a radially outer
cylindrical wall portion of the tank. The hemi-toroidal profile of
10 the tank bottom has a monotonically increasing toroidal radius
between the neck and wall portions. Disposed within the tank is an
assembly including an axial flow impeller with pitched impeller
blades, a stator adjacent to the impeller and having stationary
15 stator blades of a pitch opposite to the pitch of the impeller
blades, a shroud surrounding the radial periphery of both the
impeller and the stator and a gas sparging means supported by the
shroud. The arrangement of the assembly provides in conjunction
with the hemi-toroidal tank bottom a substantially swirl-free
20 laminar flow of the liquid suspension directed downwardly along the
neck portion and along the tank bottom when the impeller is
rotatably driven by a drive shaft.