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AIRLIFT REACTORS: HYDRODYNAMICS, MASS TRANSFER AND APPLICATIONS IN ENVIRONMENTAL REMEDIATION

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Abstract

Airlift reactors are a promising design for various applications in chemical engineering, biotechnology and environmental remediation. Since major aspects - hydrodynamics, mixing, mass and heat transfer, are determinant for their flexibility and exploitation, an analysis focused on some of reported data on gas hold up, liquid velocity, mixing and mass transfer in gas-liquid airlift reactors, together with the examination of design parameters characterizing the operation and transport phenomena have been performed. Areas of particular concern and those in need of further research in this field are mentioned.

Although current knowledge does not permit airlift reactor design with a high degree of confidence, the paper highlights some applications in wastewater, gaseous streams and soil treatment. Various treatment technologies are illustrated with examples from the literature.

Key words: gas hold up, environmental remediation, liquid velocity, mass transfer

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