

Effect of dispersed solid particles with modified surface on the intensity of oxygen mass transfer in gas-liquid system

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Abstract

Fine particles of quartz and titanium dioxide modified by thin films of polymers (polyvinyl chloride, polystyrene, polymethyl methacrylate) were obtained. Influence of these particles on the rate of oxygen mass transfer in gas (air) – liquid (water) system was studied. It was shown that the ability of modified particles to oxygen mass transfer enhancement was increased with decreasing of surface wettability, size and density of the particles. It was found that maximum oxygen mass transfer enhancement factor was observed in the presence of quartz particles coated with polyvinyl chloride (SiO₂/PVC). The effect of SiO₂/PVC particles concentration on the oxygen mass transfer was investigated. Hydrodynamic conditions for the maximum effect of SiO₂/PVC particles on oxygen mass transfer were determined.