Minimun speed of stirrer rotation (Njs) and its effect on pyritic sulphur removal in biological coal desulfurisation

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Abstrak

A small batch reactor complete with a stirrer was used to conduct biological coal desulphurisation using a mixed culture, dominated by Thiobacillus ferroxidans. Using the Zwietering formula, the minimum speed of stirrer rotation for the reactor to maintain the coal and medium in a state of complete suspension was calculated. The amount of pytric sulphur removal was affected by a change in the speed of the stirrer rotation. The result showed that a change in stirrer rotation from 125 rpm to 175 rpm caused an increase of pytric sulphur removal whereas if the coal slurry concentration increased to 25% and 35% w/v, there was a decrease.