Vinasse – a potential biofuel, co-firing with coal in a fluidised bed

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Abstract:

In this study, vinasse, a by product of sugar industry, was analysed for its behaviour during combustion in a fluidised bed combustor. Due to potential agglomeration problems owing to its high potassium content, the vinasse was first pre-assessed using agglomeration indices and muffle furnace tests. Subsequently it was co-fired with Thoresby singles coal in a bubbling fluidised bed of 25kW thermal capacity. It is found that the agglomeration indices are good indicators of agglomeration tendency of biomass fuels and should be used to pre-analyse the material before firing in a fluidised bed. It was observed during cofiring in fluidised bed that agglomeration occurred very quickly due to high alkali content of vinasse. It is found that not only the alkali content of the material but its feed rate and combustion temperature are also controlling parameters for agglomeration. Vinasse can be used as potential fuel source by carefully controlling operational parameters are by adding alkali getters.

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