

Influence of Process Operating Conditions in the Sorption-Enhanced Gasification of the Organic Fraction of Municipal Solid Waste (MSW)

Short introductive summary:

In this work, a sorption-enhanced gasification (SEG) process is studied using the organic fraction of a Municipal Solid Waste (MSW) as feedstock in a 30 kWth bubbling fluidised bed (BFB) reactor. Experiments using steam-to-carbon ratios in the range of 1 to 1.5 molH₂O/molC with different sorbent-to-biomass proportions and gasification temperatures were conducted in a 30 kWth bubbling fluidized bed reactor. Solid residence time in the reactor was modified through the biomass and CO₂ sorbent flow rates fed to the reactor.

The influence of each operating variable in the syngas composition as well as in the yield and composition of the tar produced has been determined through these experiments. Moreover, it has been calculated char conversion in the gasifier for the different experiments performed with the objective of elucidating a semi empirical model for predicting such conversion as a function of the gasification temperature and solid residence time in the reactor.

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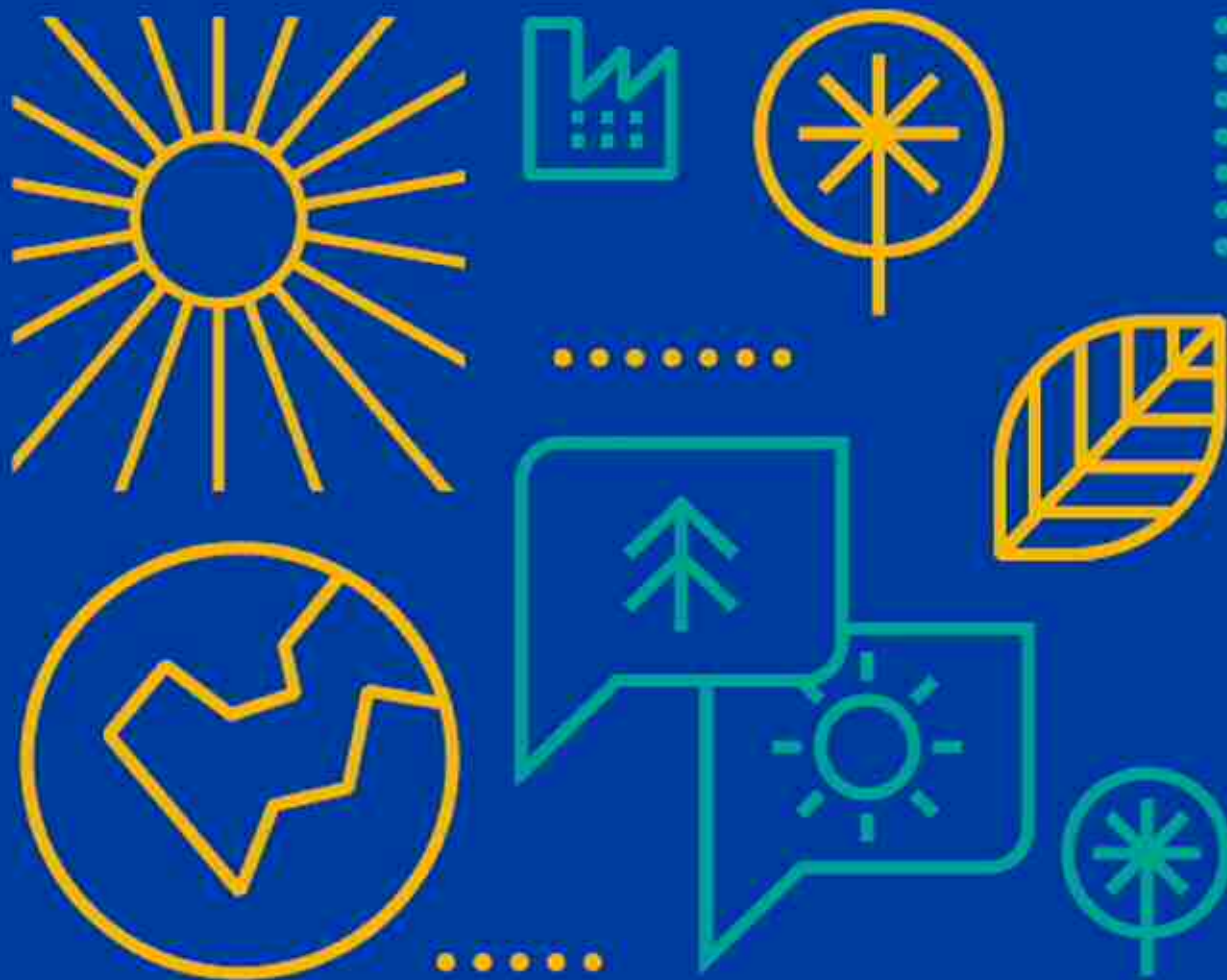
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Session reference: 2BO.5.2

Subtopic: 2.5 Gasification for Synthesis Gas Production

Topic: 2. BIOMASS CONVERSION FOR BIOENERGY



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