Advanced biomass combustion on a grate

PhD. Student	: ir. M. Markovic		
Thesis advisor	: prof. dr. ir. G. Brem	**Phone**	: +31.53.489.3564
Supervisor	: ir. E.A. Bramer	**Fax**	: +31.53.489.3663
Research group	: CTW/ThW	**E-mail**	: m.markovic@utwente.nl
OSPT theme	: Energy Conversion Processes	**URL**	: http://www.thw.ctw.utwente.nl
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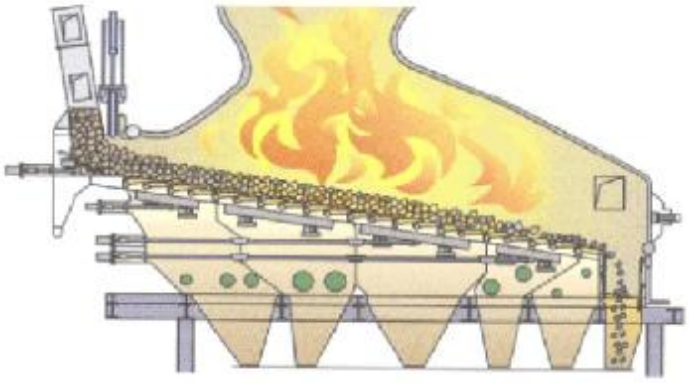
Introduction

Sustainable energy is an issue of great importance for our society. Of all sustainable energy sources, biomass and residues of biomass represent the main ones. The most frequent way of utilizing those sources is combustion. In addition, generation of municipal wastes increases rapidly, and that represents the main motive for investigating the possibility of using waste as energy source. Current technology is based on grate furnaces, where chemical energy of the fuel is converted into electricity, and in some cases into electricity and heat (cogeneration) used for various purposes. The efficiency of energy conversion is in a range of 20-30%, but in last few years new developments emerged, that could improve that efficiency even higher than 30%. The researches in this area are inclined toward better overall energy efficiency, reduced emissions and better ash quality.

Description

The conversion of solid fuels in grate furnaces, with ignition from the top of the fuel bed have been investigated. New approach in this area could be turned toward ignition from the bottom by preheated air. The goal of this research is to determine whether this way of ignition is applicable in current technology, as well as its influence on emissions, bottom ash quality, combustion rate, and combustion flexibility.



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