

Equilibrium Calculations for Sulphate Reactions in Biomass Combustion

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ABSTRACT

High temperature chlorine corrosion is one of the most common reasons for damage of biomass boilers. Until today it has not been possible to clearly correlate the composition of the biomass fuel to the high temperature chlorine corrosion in order to draw up a damage limitation.

The project *KorrMind* will provide first correlation analyses which are performed to investigate the effect of fuel composition on particles and flue gas formation, the formation of deposits and high-temperature chlorine corrosion.

Correlation analyses will be performed utilizing gas and particulate sampling systems, as well as covering analysis and online corrosion measurements in an automated test system under constant process conditions.

With the help of the software FactSage equilibrium calculations will be done to determine the equilibrium reactions between particles and gas phase under the experimental conditions. Based on the results conclusions regarding corrosion-reducing effects of substances will be drawn.

The evaluated corrosion reduction reactions are used for the development of a corrosion mitigation approach, which, in addition to the assessment of corrosion potential of fuels, are going to enhance the potential for corrosion mitigation