

Reducing ash-related operational problems in waste wood combustion using additives

Project overview

Susanne Paulrud
RISE Research Institute of Sweden
Wels February 28, 2019

Eragnet Bioenergy project

- Eragnet Bioenergy support cooperation between European countries but the funding is national.
- REFAWOOD consists of 16 partners from Sweden, Austria, Germany, the Netherlands, and Poland.
- 8 companies, 4 research institutes/organisations and 4 universities.
- The workshop will present results from the project focusing on the use of additives in waste wood combustion.

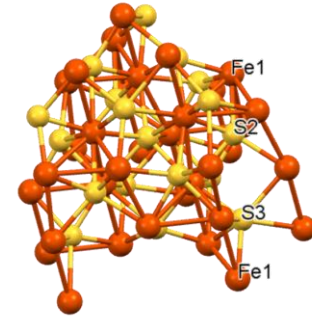
Background to REFAWOOD

- Wood waste comes in different fractions, ranging from untreated forest residues to demolition wood.
- Waste wood contains more or less elements that increase the risk to get ash-related problems.
- Wood waste-fired CHP plant in Europe reports more or less corrosion problems that cause unacceptably short life times.



Background to REFAWOOD

- Measures to reduce the alkali chloride-related problems in biomass combustion is to use additives.
- Benefit of the use of additives is:
- The reduction of slagging and fouling in the boilers.
- Increased total lifetime of heat exchanger due to reduced corrosion.
- Reduction of downtime and reduced O&M costs.



**RI
SE**



REFAWOOD

**ERA-NET
Bioenergy**

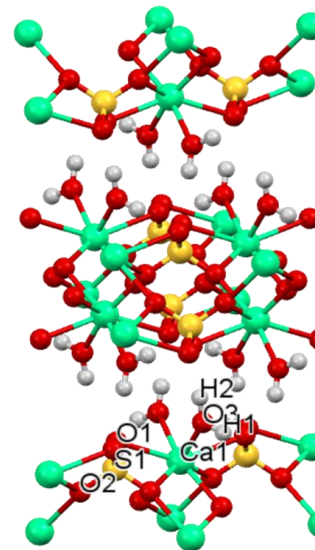


Project goals

- Propose fuel additive design concepts for reducing ash related operational problems.
- Perform full-scale combustion tests to demonstrate effective fuel additive design concepts.
- Show how fuel additive design concepts are related to reduced O&M costs.
- Determine the environmental and economic effects of using various additives in waste wood combustion in CHP/heating plants.

Studied additives

- REFAWOOD has focused on additives from wastes materials with low costs and large amounts available.
- Gypsum powder, coal fly ash, halloysite, iron sulphide and paper sludge.



Studied fuels and heat and power plants

- Waste wood: Forest residues, residues from wood chip boards, demolition wood.
- Large CHP-plant (55 MW heat, 24 MW electricity), medium large CHP-plant (7 MW), small heating plant for pelletized fuel (800 kW).



Presentations of the day

- Fuel additive design concepts for reduction of ash related problems in waste wood combustion: Results from thermochemical modelling and laboratory measurements.
- Waste wood and additives in large-scale combustion plants: Reductions in downtime and the effect on boiler corrosion.
- Regulations for using waste wood.
- Environmental and economic consequences of using low-cost additives to reduce ash-related problems.



Thank you for your attention!

Susanne Paulrud

susanne.paulrus@ri.se

You will find the results:

www.refawood.com