

Consortium Materials technology for thermal energy processes – minutes board meeting no 3/17

Date	September 11, meeting time 10.00-11.30	
Place	Energiforsk, Stockholm	
Participants	Erik Skog (chair) Anna Jonasson Dilip Chandrasekaran Bo Jönsson Marie-Aude Porter Eva-Katrin Lindman Erik Dahlén Vesna Barisic Thomas Norman Lars Mikkelsen Søren Aakjær Jensen Andreas Borg Matti Huhtakangas Johan Moverare Annika Stålenheim Rikard Norling Pamela Henderson Jan-Erik Svensson Bertil Wahlund (secr.)	Erik Skog AB E.ON Värme Sverige Kanthal/Sandvik Heating Technology Kanthal/Sandvik Heating Technology Siemens Fortum värme Fortum värme Sumitomo FW B&W Vølund B&W Vølund Dong Energy GKN Aerospace MH Engineering Linköpings universitet Vattenfall Swerea KIMAB Vattenfall Chalmers Energiforsk
Prevented	Jesper Ederth Christoph Gruber Sebastian Kaiser Edgardo Coda	Sandvik Materials Technology Andritz Andritz Sumitomo FW
Distribution	participants, prevented and Sven Andersson Per Kallner Andreas Sundlöf Erik Westman Henrik Lindståhl Mikael Fransson Ulf Hagman Erika Antonsson Toni Holkko Lucas Enström Ulf Lindqvist Jesper Baaring Johan Thelander Magnus Eriksson Lars Hammar Patrik Schneider Jasmin Aspen Erik Thornström	
		B&W Vølund/Götaverken Vattenfall Söderenergi Söderenergi Tekniska verken i Linköping AB Tekniska verken i Linköping AB Göteborg Energi AB Göteborg Energi AB Gävle Energi Gävle Energi Jämtkraft AB Öresundskraft Karlstads Energi AB Mälarenergi AB Krafringen Krafringen Krafringen Swedenergy

1 Agenda

The distributed agenda was approved.

2 Person to approve minutes

EKL, Fortum, was elected to approve minutes (next present person/company on participants list).

3 Minutes from board meeting 2/17

The minutes from board meeting 2/17 was approved without comments.

- The report *High temperature corrosion in used-wood fired boilers*, KME-708, is approved, and can be downloaded from <http://www.energiforsk.se/program/kme/member-area/project-descriptions-status-reports-and-final-reports/> (username: Members_KME, password: AlloyS)

Project summary:

Increased use of used (recycled) wood as a fuel in heat and power boilers, causes more corrosion problems, especially in the furnace where there is a lack of oxygen (low NOx combustion). This project sought to find cost effective ways of reducing the corrosion, and corrosion tests in the furnace wall area and at the superheaters shows that:

- 1. Low alloyed steels exhibited high corrosion rates, while austenitic stainless steels, FeCrAl alloys and Ni-base alloys gave good results (low corrosion). Some alloys were identified that showed similar corrosion rates to Alloy 625. These alloys are not nickel-based and are therefore cheaper than Alloy 625.*
- 2. Small differences in the chlorine and lead content of a fuel resulted in large differences in the corrosion rate. (Higher Cl- and Pb-levels give higher corrosion rates). This means that corrosion can be reduced by careful control of the fuel composition.*
- 3. Co-combustion of used wood with digested sewage sludge reduces the initial corrosion and longer exposures will be performed in stage 2 of the project (KME-718).*

4 Notifications

4.1 Coming dissertations

The board members are recommended to send information to BW.

Upcoming dissertations

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Recently defended dissertations

Andrea Olivas, Licentiate thesis *High temperature chlorine-induced corrosion of low-alloyed and stainless steels*, defended August

4.2 Coming conferences and workshops

EUROMAT Conference 2017, 17-22 Sept, 2017, Thessaloniki, Greece
<http://euromat2017.fems.eu/>

EUROMAT Conference 2019, Stockholm, Sweden, 2019. Workshop to discuss material research and industry-academy collaborations in Sweden, 18 May,

2017, in Stockholm. Organisation FEMS (<http://www.fems.org/>). Contact person for workshop Sten Johansson, LiU

5 Budget

BW showed the updated budget follow. Follow up is made of funds used, requested cash and reported in-kind. The reporting follows the plan and two projects reports in-kind contribution over 100 %. A reminder about the reporting dates for industry in-kind:

- March 31 the following year for the period July-December
- September 30 for the period January-June.

6 Follow up of project

Updated project status reports, including the delayed reports, published at the KME web.

Previously reported delay in project KME-720 has been solved and project is now catching up.

7 Planning of next KME programme

BW informed about the status of the planning for the new programme.

There are two parallel processes, one for respective Energy Agency programme from which KME will apply research grants; *Steam based processes* and *Turbines for future technologies*. In both processes and in the elaboration of projects, etc, KME can assist in the work.

Turbines for future technologies

The programme Turbines for future technologies is already ongoing and KME is discussing with SEA on how and when materials technology research could be included in the programme (not included in the first call and will most probably not be in the next call during the autumn, due to a delay in start of programme). For the ongoing PhD students in the system, separate applications for funding of the transitional period will have to be submitted to SEA. However, SEA sounds more positive towards materials research for gas turbines.

BW will call to a separate meeting with the interested parties for strategic discussion on how to proceed.

Steam based process

The dialogue with SEA for steam based process is going well. The topics in the programme is well in line with what KME would like to achieve: increased power yield, fuel flexibility, operating flexibility and availability.

Based on the project initiatives initiated so far, three WPs have been identified, see below. The WPs will be updated and revised when further initiatives are elaborated. Separate project agreement will be signed for each individual project conducted with in KME.

Two new stakeholders, Valmet and Calderys (refractory), have declared that they will join the next KME programme.

The Energy agency's cash funds for the programme will amount to 80-100 MSEK in four years (shall be related to the current approx. 28 MSEK for steam based projects).

Discussed WPs and projects (to be updated when more initiatives are elaborated and new stakeholders join projects):

- Sand seal
 - o project Sumitomo-Kraftträngen, E.ON, Kanthal, with Chalmers/HTC as researchers and project leader
- Heavy metal corrosion in waterwalls and superheaters
 - o project Valmet-Mälarenergi, E.ON, Vattenfall, Fortum, Kanthal, with Swerea KIMAB as researchers and project leader
 - o project Sumitomo-Kraftträngen, Mälarenergi, Kanthal, (Jämtkraft, Falun) with Chalmers/HTC as researchers and project leader
- Refractory lining
 - o project Valmet-Mälarenergi, E.ON, Vattenfall, Fortum, with Swerea KIMAB as project leader.
- "Thicker materials, headers and pipes" (identified at meeting)
 - o project Sandvik with LiU as researchers and project leader

Time plan:

- 1 October, draft programme descriptions to KME
- 19 October, the Swedish Energy Agency take decision in EUN (Energikutvecklingsnämnd)
- 1 November, call opens
- 1 February 2018, final project descriptions sent to KME, for compilation to a "consortium application"
- 28 February 2018, Consortium application (project package) submitted to the Swedish Energy Agency. Call closes.

Comments:

- The board recommended a large budget frame in the first call and the second call should be held as soon as possible after call 1 and when the outcome of call 1 is known.
- It is easier for EUN to make decision when having a group of project organised in a Consortium application, rather than several separate projects. Therefore, a Consortium application is better.
- Current WP can be re-organised when all project initiatives are in place. A further WPs could be the Sandvik-LiU-project initiative, included in the list above. Project leader Mattias Calmunger will send information to BW.
- BW distribute an updated format for application.
- A group that can be helpful in elaboration of consortium application was appointed: Pamela Henderson, researchers elaborating the project proposals and KME future group.
- Consider linking HTC and KME applications
- Application is to be approved by board.
- New stakeholders, Valmet and Calderys, should be invited to next KME board meeting

Decision:

- New stakeholders shall be invited to next KME board meeting (to the part of meeting dealing with the new programme period and project discussions)

8 Programme conference HTC/KME

The 2018 conference will be held **March 20-21, 2018**, at Spårvagnshallarna, Stockholm.

9 Others

10 Next meetings

2017 meeting

- Physical meeting in November 28, time 13-15, Gothenburg at Chalmers/HTC. (held the same day as HTC board, time 10-12)

2018 meetings

- Telephone meeting in February
- Physical meeting in March/April/May, Stockholm

2018 conference

- KME/HTC programme conference 2018, March 20-21, Stockholm

Minutes by

Bertil Wahlund

Minutes approval

Eva-Katrin Lindman, Fortum

Minutes approval

Erik Skog, chairperson