Minutes of the progress meeting

Project Nº ENK5-CT2002-80648: Tar Measurement Standard

Location: Rome, Palazzo dei Congressi
12th May 2004, Time: 14.00-19.30

Project participants present

B. Coda	ECN
J. Kiel	ECN
H. v.d. Hoek	NEN
M. Dijkhuis	NEN
M. Suomalainen	VTT
U. Zielke	DTI
T. Liliedhal	KTH
J. Good	Verenum
H. Knoef	BTG
L. Ventress	Casella Group
J. Neeft	NOVEM

Other invited parties:

C. Unger	Fraunhofer UMSICHT
M. Fernandez Gutierrez	European Commission

Introduction and welcome

B.Coda opens the meeting, welcoming the participants and highlighting the good response that the presentation of the project held at the Rome World Biomass Conference had received, especially from non-European parties who welcomed very much this standardisation effort.

Welcome from European Commission

M. Fernandez Gutierrez welcomes the participants and illustrates the importance and the meaning of the mid-term meeting in order to assess the progress of the project and to discuss any potential deviation from the initial work plan.

Presentation from the co-ordinator

A power point copy of the presentation is given as attachment. Here the major conclusions:

1. R&D

Project activities are well under schedule according to the original plan. The main conclusions are:

The main R&D activities of the project are the Round Robin test and the parallel measurement campaign. In the first activity the accuracy and reproducibility of the analysis method will be given, while in the second one the whole method (sampling +analysis) will be tested.

The RRT of synthetic tar samples and of real tar samples has been completed and evaluation is currently being finalised. So far the two parts of the RRT on gravimetric and GC analysis – divided in 4 parts - has been completed and the results are in course of finalisation.

Parallel measurement campaign: The first parallel measurement campaign has been organised and successfully performed in the updraft-gasifier plant of Harboore, Denmark, in week 18, with the results currently under evaluation. The parallel measurement campaign at the fluidised bed gasifier campaign will be performed during fall 2004.

2. Standardisation

The activities of the CEN/TF/143, started officially in Helsinki meeting in June, are well under way- a third draft of the Standard will be discussed the next day with national delegates. New national delegate from Portugual will join the meeting and observers from Italy, Spain and Austria will also do.

3. Dissemination

Here few highlights of the dissemination work:

- A presentation on the project has been given at the conference ´Enlarged perspectives` organised by the European Commission in Budapest in October 2003.
- A presentation was given at the 2nd World Biomass Conference
- A paper will be written for the next Science in Thermal and Chemical Biomass Conversion (STCBC) Conference, which will be held in Vancouver in October 2004
- The www.tarweb.net web page of the project has been updated with new information related to the project, the draft standard and the overall standardisation activity.

4. Contractual/Administrative issues

- A mid-term report must be sent by the co-ordinator at the latest two months later after the 18th month from the project commencement, together with a draft of the TIP (Technology implementation plan) and the minutes of the mid-term meeting. The 1st year progress report was sent in due time in January 2004.

5. Major deviations from the original work plan

There are basically no major deviations from the original work plan. The only thing that has changed is the type of the standard (final deliverable of the project) that will be produced by the CEN TF 143, which decided to issue a TS (Technical Specification) type of standard instead of the originally foreseen EN type of standard. The mean reason is because the EN standard implies two stages of voting procedure that will make impossible to finalise the standard in the framework of the project lifetime. However, **It has to be pointed out that both EN and TS type of standard have the same normative value and CEN member countries are obliged to implement that as national standard.** This means that changing to a TS type of standard does modify neither the standardisation trajectory with respect to the project lifetime nor the final normative value of the final deliverables.

R&D Discussion

1. RRT.

The final round of the RRT has been concluded. The main discussion topic was how to deal with outliers. From the discussion the following conclusions were reached:

- The group agreed that a CV% of 20 % should be accepted in the statistical results
- A proposal will be sent out on how to incorporate the results of the first part of the RRT (synthetic tar samples) with those of the second part (real tar samples)- **action DTI**
- The statistical results of the tars from FB gasifier are overall very good for individual compounds and they will be incorporated as such in the standard. As for the updraft gasifier tars, statistical results from individual compounds do not appear satisfactory yet; on the contrary, the numbers for overall GC detectable (updraft) tar are very good – determined via GC –FID-and they will be incorporated in the draft standard.
- It will be looked at the individual results of the laboratories as far as the updraft gasifier are concerned to see if the statistics can be improved **(action DTI)**
- As far as the gravimetric tar RRT is concerned, results of 4 laboratories (out of 6) are well in agreement, while 2 laboratories perform differently. To take a final decision on the

statistical results of the gravimetric tars, first it is necessary to know the reasons for the discrepancies of these 2 laboratories.

2. Parallel measurement campaign

In Harboore, at a commercial-scale updraft gasifier, the first parallel measurement campaign was successfully performed in week 18. Three laboratories participated in the measurements performing the Tar Guideline sampling: ECN, DTI and Umsicht. KTH, participated also in the sampling and performed measurements by means of the SPA technique. 6 samples in the raw gas and 4 samples after ESP- clean gas- were collected. The campaign went quite smoothly and no particular problems were encountered; analysis of the samples is under way.

It is decided that:

- The samples will be still analysed for GC individual compounds via GC MS and overall GC detectable tar via GC-FID **(action ECN, DTI, UMSICHT).** Overall analysis should be ready for mid-June.
- **ECN** will contact UMSICHT and DTI to get more information about GC MS technique in order to perform the analysis with as similar as possible procedure
- Results should be ready before/immediately after summer. Once results are ready, DTI, ECN and UMSICHT will try to hold a specific meeting /telephone conference, if necessary, in order to have a good evaluation of the results (**action ECN**). Foreseen for the month of august.

Next parallel measurement campaign

- The next parallel measurement campaign will be organised at the UMSICHT CFB gasifier plant. It is agreed that a parallel measurement campaign will be held in the first half of 2004. The campaign will be probably held between October/November 2004. It will be possible to analyse both raw and clean gas. UMSICHT will communicate in 6-8 weeks the date for the campaign (**action UMSICHT**)
- After that, official invitation for the campaign will be sent out (**action DTI**). A maximum number of 8 participants is possible.

Other R&D

It is agreed about the basic configuration of the impinger trains that will be put in the standard. The configuration, including 6 bottles, in terms of temperature (and frits) is the following:
1) 40 °C; 2) 40 °C (frit); 3) -20°C; 4) 40 °C; 5) -20°C; 6) -20°C (frit)
Another configuration will be also put in the standard, but only as optional one.
1) 40 °C; 2) 40 °C; 3) 40 °C; 4) 40 °C; 5) -20°C; 6) -20°C
This one does not include the use of frits. In the standard it will be specified that the use of frits is important as it improves the aerosol capture.
It is agreed that this basic configuration will be tested extensively in the next parallel measurement campaign. Participants should test this impinger train before the parallel measurement campaign at its own laboratory.
ECN will check the collection efficiency of the selected impinger train configuration together with other selected configurations, including the Petersen column (**action ECN**).
VTT and **DTI** would share the reporting work of the overall R&D (parallel measurement and RRT). They will inform the co-ordinator about the final decision.
VTT will take the co-ordination of the organisation of the next parallel measurement campaign (**action VTT**)

Project assessment at Mid-term

The Scientific officer evaluates positively the project progress and allowed officially the continuation of the project. All the members of the consortium were interested carry on with the project and committed to the achievement of its objectives.

Next project meeting

Next project meeting will be held probably in combination with the parallel measurement campaign at Oberhausen, at the UMSICHT facilities. However, a final decision has been postponed and it will be taken only when the progress of the R&D and on the draft standard will become clearer, probably after the closure of the RRT and the evaluation of the first parallel measurement campaign of Harboore.