



Possible implementation of AshMeIT- methods in current standards & certificates

AshMeIT & Safepellets Workshop. 15.Oct.2014

13. **industrieforum**
PELLETS



Content

- Purpose & use of AshMeIT methods
- Status of the project
- Outcome from method validation
- Steps towards a draft standard
- Ash melting in actual standards & certificates
- Introduction of AshMeIT results

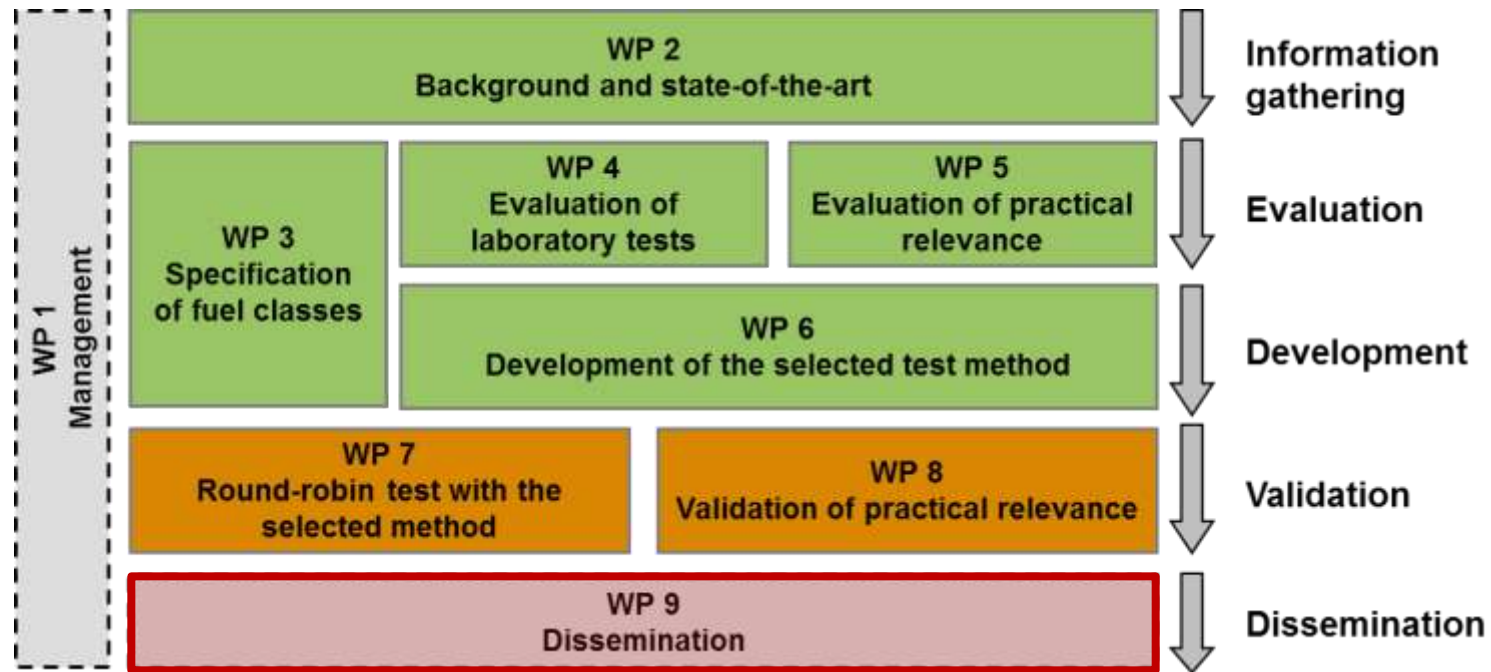
Purpose & use of AshMeIT methods

...provide information about **melting properties & slag formation propensity** of biomass fuel ashes

- Quality control
- Compare & assess severity of biomass fuels
- Estimate suitable technologies for application



Status of the project



Task 9.5 Standardisation and certification activities

- Preparation of working draft for the respective EN and/or ISO-Technical committee
- Recommendation for ENplus® quality label

Outcome from method validation

	PASSA test	Slag analyzer
Feasibility & quality of the method (cf. WP 7)		
Availability of equipment	+	!
Reproducibility	RR data	?
Repeatability	RR data	?
Practical relevance of the method (cf. WP8)		
Test results adequately reflect the severity/applicability of the fuel (in real application)	+	+
Method is applicable to a wide range of fuel qualities	+	+
Method is able to differentiate within a narrow quality range	! / ?	! / ?



Steps towards a draft standard & recommendations for quality labels

- **Clarify and resolve essential open issues** regarding the method quality, feasibility and relevance
 - Procurability of comparable slag analyzer equipment
 - Optimization of calculation method for decisive parameters
 - Specification of appropriate threshold values and respective classification
- **Considering opinions and perception of key stakeholders** representatives of the pellets industry – members of national and international standardization bodies – representatives from testing houses
- **Final assessment** by re-examination of overall criteria applied for initial method evaluation including new knowledge gained within the project
- **Appropriate revision of actual method description**

Criteria applied for initial method assessment

Implementation aspects

- Availability of method
- Easy standardisation possible
- Independent application

Economic aspects

- Investment costs & cost of consumables
- Labour requirement
- Number of staff during test performance
- Sample processing time required

Handling & safety aspects

- Apparative complexity
- Requirements concerning operating materials
- Requirements concerning laboratory instrumentation
- Training requirement for laboratory staff

Accuracy & differentiation aspects

- Sample size
- Differentiation range
- Avoidance of error by subjective judgement
- Reproducibility of results

Slag prediction capacity

- Predictability of slagging in fixed bed combustion

Reference to ash melting in actual standards & certificates

■ Standard method

CEN/TS 15370-1 Solid biofuels – Method for the determination of ash melting behaviour. Part 1: Characteristic temperatures method

■ Standards & regulations referring to CEN/TS 15370-1

informative

- ISO standards - All characteristic temperatures in oxidizing conditions should be stated.
 - ISO 17225-2 Solid biofuels – Fuel specifications and classes Part 2: Graded wood pellets
 - ISO 17225-6 Solid biofuels – Fuel specifications and classes Part 6: Graded non-woody pellets
- All characteristic temperatures in oxidizing conditions should be stated.

obligatory

- ENplus® quality label⁺⁾
 - Determination of characteristic temperatures required
 - Defined threshold values (DT ≥ 1200°C for ENplus-A1 and DT ≥ 1100°C for ENplus-A2 / EN-B)

informative

- Other standards (e.g. national standards)
 - Defined threshold value of DT > 800°C for Miscanthus-fuels (ÖNORM C4000 and ÖNORM C4001) and straw pellets (ÖNORM C4002)
 - Informativ characteristic for maize residues (ÖNORM C4003)

normative

■ Ongoing activities

NWIP on ash melting characteristics is work in progress within WG5 (Chemical test methods) of ISO/TC238

⁺⁾ ash samples produced at 815°C

Introduction of AshMeIT results



Proposal stage

Need of new Standard -> New work item proposal (NWIP)

Preparatory stage

Working draft for ash melting method is provided to ISO/TC238

Committee stage

Draft shared with members of parent committee.

Enquiry stage

Draft International Standard (DIS) is submitted. Votes and comments -> DIS approved or not

Approval stage

Significantly revised drafts are re-submitted for vote.

Publication stage

Final document submitted for publication as an International Standard.

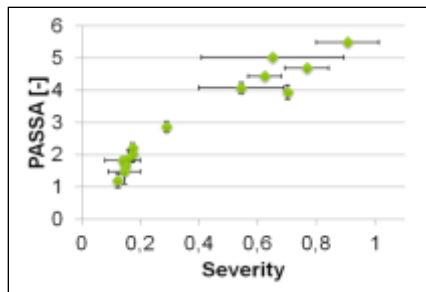


Recommendations regarding fuel quality in terms of ash melting properties within ENplus® quality label are summarized.

A respective modification proposal for the next review of ENplus handbook is provided to the European Pellet Council (EPC).

Conclusions

- **Results from test methods AND real appliances** (slag formation and combustion performance)
- Both methods show **clear trends regarding practical performance**
- Results need to be transferred into
 - Appropriate **characteristic values**, and
 - reasonable **threshold values** and related
 - **fuel classes** need to be specified



A1: SA / PASSA < ?
 A2: SA / PASSA < ?
 B: SA / PASSA < ?



Acknowledgement

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under Grant Agreement n° 287062.



We also would like to highly acknowledge the contributions of:





bioenergy2020+

Thank you for your attention

Elisabeth Wopienka

elisabeth.wopienka@bioenergy2020.eu

AshMelT & Safepellets Workshop. 15.Oct.2014