



bioenergy2020+

# AshMeIT *project*

Outlook for the Project: Future Application and Development of the AshMeIT methods

AshMeIT Workshop. February 26th 2015.



## Overview

- Draft standards & EN proposal
- Other methodologies
- Open issues
- Dissemination



- **Solid biofuels** - Method for the determination of ash melting behaviour - Pellets Ash and Slag Sieving Assessing Method
  
- **Solid biofuels** - Method for the determination of ash melting behaviour – Slag Analyser methodology

**Solid biofuels - Methc  
Slag Analyser method**

*Einführendes Element — Haupt-E  
Élément introductif — Élément cer*

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**Solid biofuels - Method for the determination of ash melting behaviour -  
Pellets Ash and Slag Sieving Assessing Method**

*Einführendes Element — Haupt-Element — Ergänzendes Element  
Élément introductif — Élément central — Élément complémentaire*

**Warning**

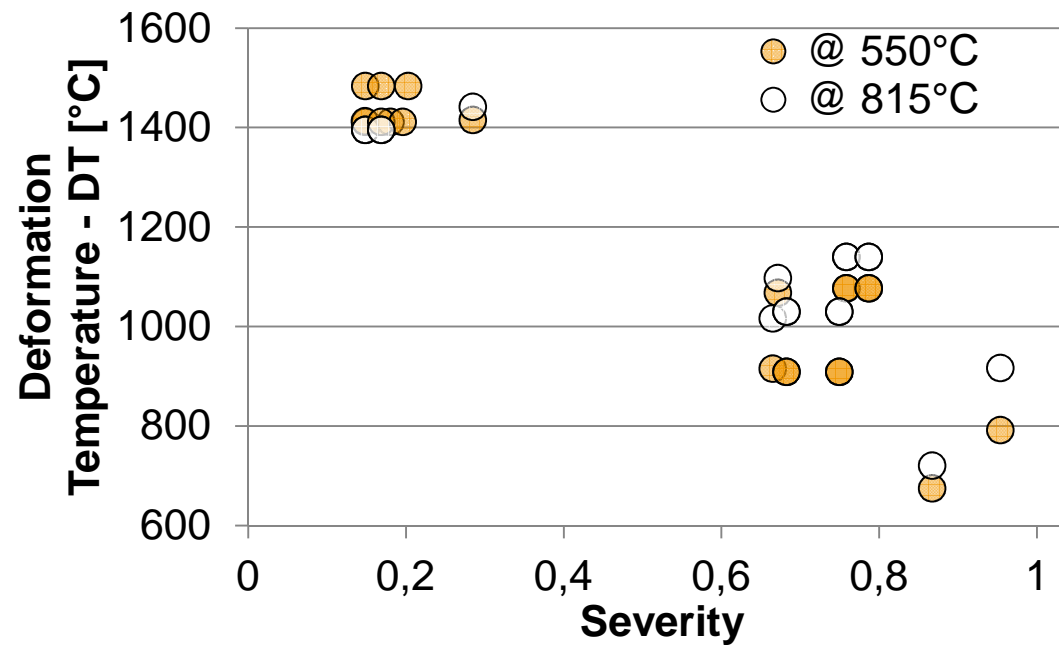
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Date: 2014-11-28  
ISO xyxyx  
ISO/TC238 WG5  
Secretariat:

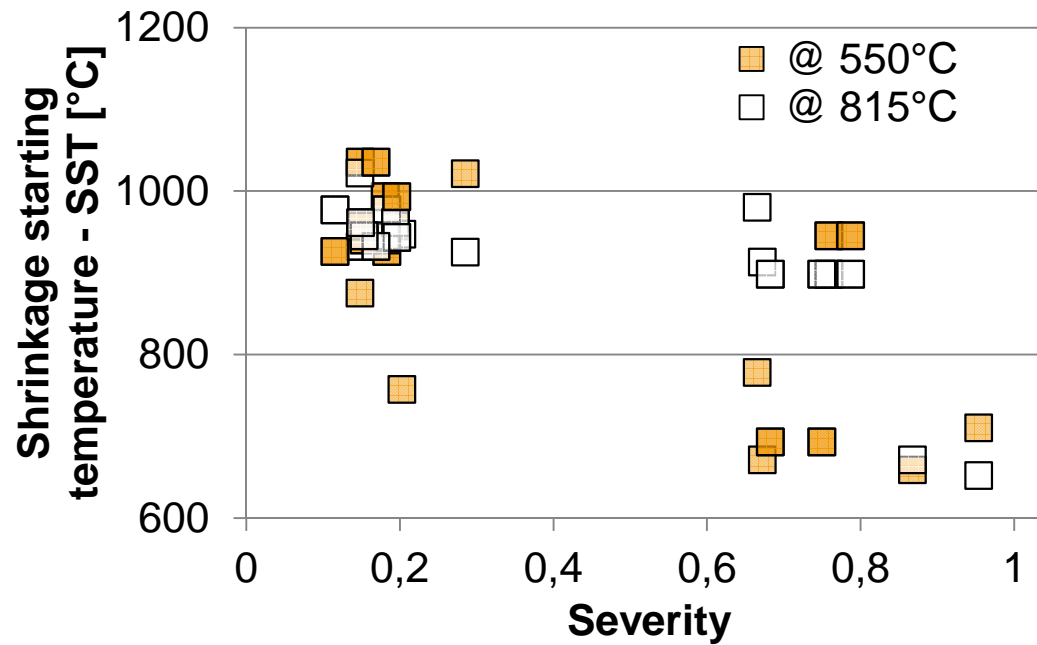


# Deformation Temperature vs. Practical slag formation



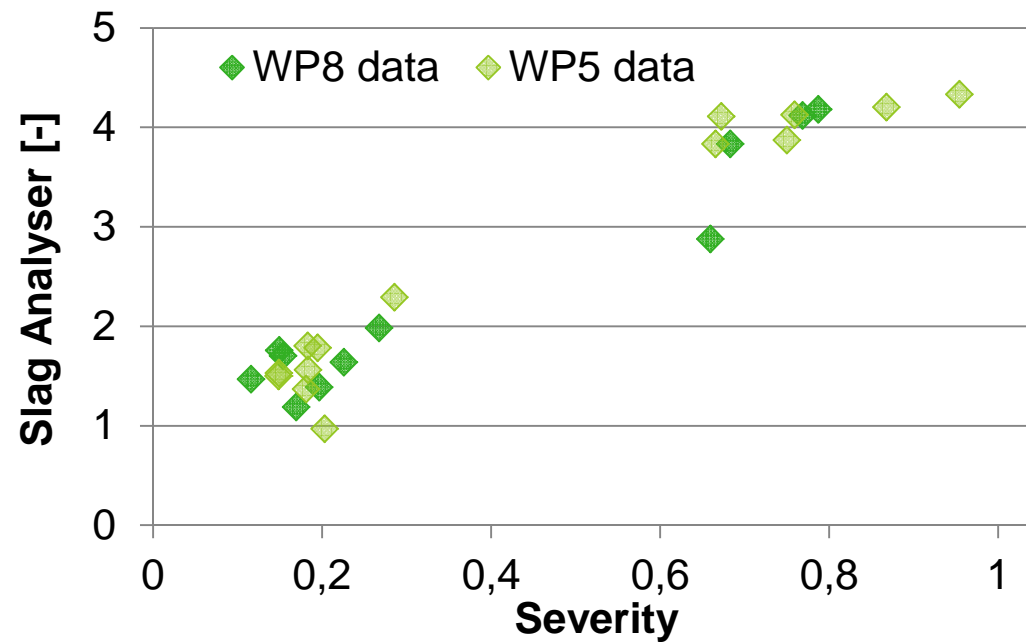


# Shrinkage starting temperature vs. Practical slag formation



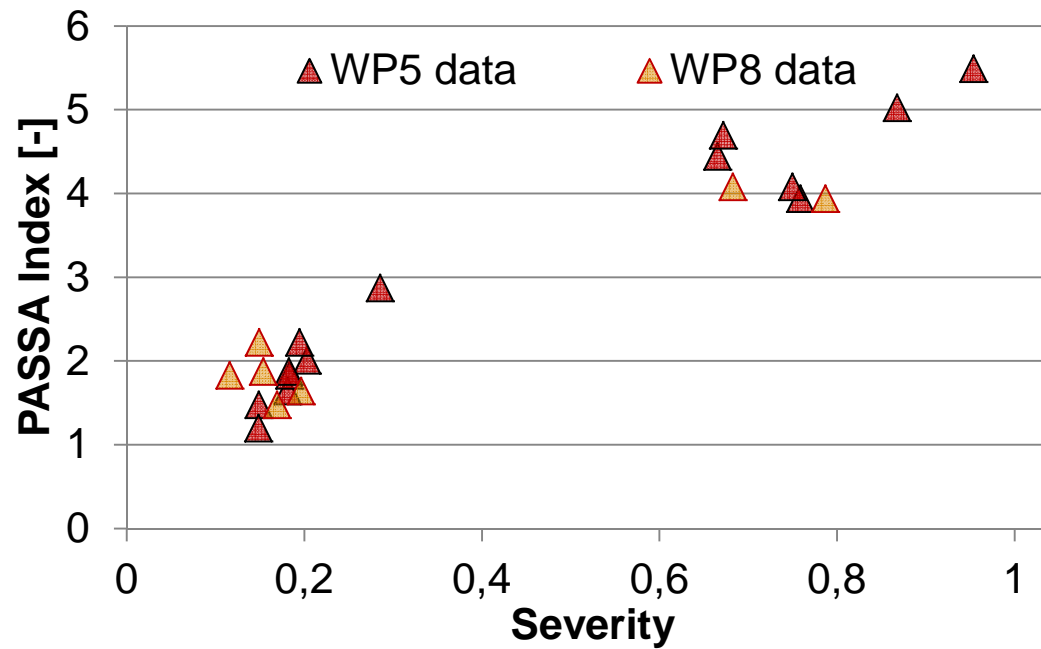


# Slag Analyser vs. Practical slag formation





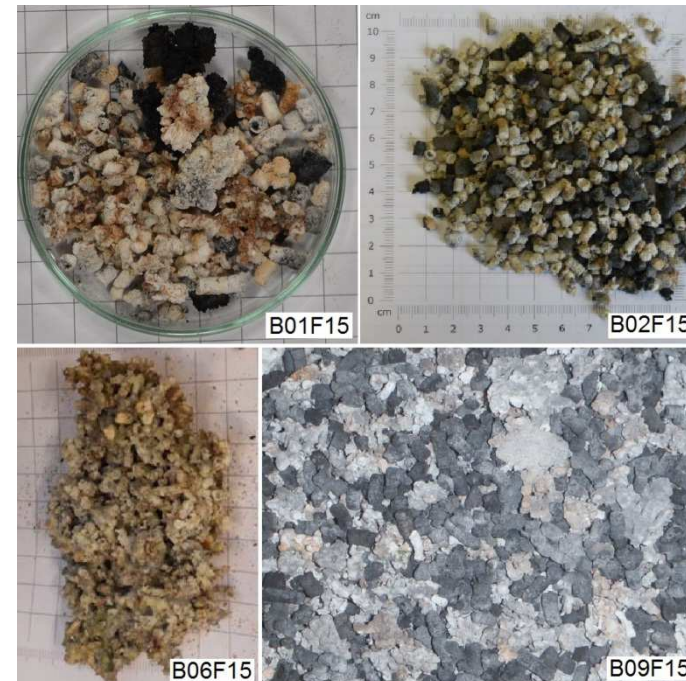
# PASSA test vs. Practical slag formation





## Other methodologies [1]

- Determination method to assess practical slagging behaviour – **SEVERITY**
  - Hardness
  - Amount of slag
- Possible fields of application:
  - Field work to document warranty issues
  - Documentation in database







## Other methodologies [2]

- Determination method to assess the impact of slagging on small scale combustion appliances – **APPLICABILITY**
  - Testing duration
  - Necessity to modify combustion appliance
  - Impact on power output
  - Emission release
  - Temperature variance
- **Field of application:** Applicability as tool for implementation of new fuels
- Expansion of definition is needed
  - Emission release
  - Corrosive issues
  - Deposition issues



## Other methodologies [3]

- Fuel classification system
  - Correlation of fuel properties (elemental composition) with applicability
  - Multivariate correlation analysis of practical combustion tests

$$F(\text{amount of slag}) = A \times SiO_2 + B \times K_2O - C \times CaO + D \times a + E \times Boiler$$

$$F(\text{testing time}) = a \times SiO_2 + b \times K_2O - c \times CaO + d \times a + E \times Boiler$$

- ~100 data sets used
- Yet not fully developed, more data to allow high significance



## Dissemination

- Comprehensive report available in summer 2015
  - Lessons learned
- Contents
  - Summarizing available test methods
  - Assessment matrix of test methods
  - Fuel classification system
  - Practical slagging behaviour in 9 different combustion systems
  - PASSA test method
  - Slag analyser test method
  - Correlation analysis



## 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.



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**Thank you very  
much for  
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