Knowledge Based Bio-based Products Pre-Standardization - WP3 Bio-based Carbon content

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Knowledge Based Bio-based Products' Pre-Standardization

WP 3

Bio-based Carbon content

KBBPPS – WP3

Jaap Hooijmans - ECN

Overall idea

- *Bio-based Carbon as a function of the total mass*
- *Bio-based Carbon as a function of the total organic Carbon – ASTM D6866*
- *Bio-based Carbon as a function of the total Carbon - KBBPPS*

Current process

- *D3.1 Overview of current relevant sampling and biogenic carbon standards on global level*
- *D3.2 Technical Specification is supplied to WG 3 TC 411 WI 00411001*
- *D3.3 Intermediate report on the proficiency test*

TC 411 - WI 00411001

FprCEN/TS 16640: Bio-based products — Determination of the bio based carbon content of products using the radiocarbon method

- Three steps:
  - Sampling
  - Treatment
  - C14 determination

Proficiency test samples

Tested & analyzed

- Pharmaceutical bio-products (9 samples)
- Bio-paint
- Bio-naphta
- Bio-diesel
- Bio-plastic (2 samples)

Results

- *Total CO_2 gathered after burning in BOM calorimeter*
  Done – easy burnable materials
  To do – more 'difficult' burnable samples

- *CO_2 gathered with gas bag – recovery 92-96%*
  CO_2 gathered using NaOH – recovery 94-97%

Samples to be done

- Biogas
- Ceramic
- Water-based paints
- Composites
- Paper (with carbonates)

C14 determination

- AMS
- Direct LSC
- Standard LSC
- LSC using benzene

There is a lack of data and performance characteristics of all methods should be in the standard

- Bio-detergents are now being tested

Results on proficiency test

- *Should be ready before May 2014*
- *An inter-laboratory test will be started in April 2014 and ends before July 2014*
- *A complete round robin will start summer 2014 (Open Bio)*

Overview of deliverables

D 3.5 ILS C14 report

D 3.6 Biogenic carbon determination development report

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