BioMates

Mapping of samples – *Fuels from Reliable Bio-based Refinery Intermediates: BioMates*, Schulzke et al., 2020, DOI:10.1007/s12649-019-00625-w

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1. Introduction

In the H2020-project BioMates (www.biomates.eu, see chapter 5 “Funding and disclaimer”), Fraunhofer UMSICHT produced samples from ablative fast pyrolysis of herbaceous biomass in a TRL 4-plant. A dedicated document provides identifiers for relevant liquid samples and their blends [1]. The document at hand maps it to the substances reported to be used in the publication:

T. Schulzke, S. Conrad, B. Shumeiko, M. Auersvald, D. Kubička, L. F. J. M. Raymakers; Fuels from Reliable Bio-based Refinery Intermediates: BioMates; Waste and Biomass Valorization (2020) 11:579–598; DOI:10.1007/s12649-019-00625-w

All references to samples, figures and table refer to this article (the “original article”), if not stated otherwise.

2. Original documents

This mapping-document refers to the following documents:

- BioMates – WP1 - Identifiers of bio-oil samples and blends [1]
- BioMates Data Management Plan – Level 2: Coding of identifiers for WP1-samples and -blends [2]

All identifiers relevant for the whole project are listed in [1]; some identifiers of samples relevant for this paper only are added in section 3 of this document. Document [2] provides further reading on how to decode the identifiers. Internet-sources for BioMates-deliverables are given on the cover page.

3. Mapping of samples- section “Ablative Fast Pyrolysis”

The identifiers of wheat/barley-straw-based liquid products in *Table 4* of the original article are listed in Table 1. Table 2 provides the identifiers for wheat/barley-straw-based total liquid products from the experiments on catalytic vapour upgrading listed in *Tables 5 and 8* of the original article, and Table 3 names the identifiers for the respective tarry-phase-samples, listed in the original article in *Table 6*.

Table 1: Identifiers of wheat/barley-based liquid products in Table 4 of the original article

Sample description	Sample full name	Sample short name
Lumped liquid composition	BM-FH-AFP4-00113-S-MST-001-T	BM-FH-09C44
Single stage condensation		
Aqueous phase	BM-FH-AFP4-00113-S-MST-001-2	BM-FH-09C42
Tarry phase	BM-FH-AFP4-00113-S-MST-001-1	BM-FH-09C41
Two stage condensation, FSCT=62.8 °C		
Aqueous phase, first stage	BM-FH-AFP4-00120-S-SS1-001-2	BM-FH-1B1A4
Tarry phase, first stage	BM-FH-AFP4-00120-S-SS1-001-1	BM-FH-1B1A3
Second stage	BM-FH-AFP4-00120-S-SS2-001-S	BM-FH-1B1AC
Two stage condensation, FSCT=65.8 °C		
First stage	BM-FH-AFP4-00122-S-SS1-001-S	BM-FH-1FFC2
Second stage	BM-FH-AFP4-00122-S-SS2-001-S	BM-FH-1FFCC
Two stage condensation, FSCT=68.8 °C		
First stage	BM-FH-AFP4-00119-S-SS1-001-S	BM-FH-18A92
Second stage	BM-FH-AFP4-00119-S-SS2-001-S	BM-FH-18A9C
Two stage condensation, FSCT=71.1 °C		
First stage	BM-FH-AFP4-00121-S-SS1-001-T	BM-FH-1D8B6
Second stage	BM-FH-AFP4-00121-S-SS2-001-T	BM-FH-1D8C0

Table 2: Identifiers of wheat/barley-based liquid products for the samples (total bio-oils of 1st samples) listed in Table 5 and Table 7 of the original article

Sample description	Sample full name	Sample short name
RS	BM-FH-AFP4-00179-S-SST-001-T	BM-FH-AB24C
SC40	BM-FH-AFP4-00181-S-SST-001-T	BM-FH-B006C
SC44	BM-FH-AFP4-00210-S-SST-001-T	BM-FH-02B01
ɣ-Al2O3	BM-FH-AFP4-00217-S-SST-001-T	BM-FH-13C71
HZSM-5	BM-FH-AFP4-00220-S-SST-001-T	BM-FH-1B1A1
HZSM-5/5%Ni	BM-FH-AFP4-00225-S-SST-001-T	BM-FH-274F1
HZSM-5/10%Ni	BM-FH-AFP4-00229-S-SST-001-T	BM-FH-31131

Table 3: Identifiers of wheat/barley-based liquid products for the samples (tarry phase of 1st samples) listed in Table 6 of the original article

Sample description	Sample full name	Sample short name
RS	BM-FH-AFP4-00179-S-SST-001-1	BM-FH-AB249
SC40	BM-FH-AFP4-00181-S-SST-001-1	BM-FH-B0069
SC44	BM-FH-AFP4-00210-S-SST-001-1	BM-FH-02AFE
ɣ-Al2O3	BM-FH-AFP4-00217-S-SST-001-1	BM-FH-13C6E
HZSM-5	BM-FH-AFP4-00220-S-SST-001-1	BM-FH-1B19E
HZSM-5/5%Ni	BM-FH-AFP4-00225-S-SST-001-1	BM-FH-274EE
HZSM-5/10%Ni	BM-FH-AFP4-00229-S-SST-001-1	BM-FH-3112E

4. Mapping of samples- section "Mild Hydrotreatment"

The bio-oil used in the parametric study, derived by ablative fast pyrolysis of wheat/barley- straw at 550 °C, 50 bar, with single-stage condensation, were taken from the mixtures BM-FH-AFP4-00174-B-MST-001-1 / BM-FH-AFP4-00188-B-MST-001-1 (BM-FH-653001 / BM-FH-793001), derived from the individual products BM-FH-AFP4-00174-S-MST-001-1 to BM-FH-AFP4-00196-S-MST-001-1 (BM-FH-9EB11 to BM-FH-D4671), listed in the document on Identifiers of TRL4-derived bio-oil samples and blends [1].

5. Funding and disclaimer

The project BioMates has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727463. For additional information on the project and contact details, please visit www.biomates.eu.

6. Literature

[1] Heil, Volker; Schulzke, Tim; *BioMates WP1: Novel pyrolysis oil from non-food/feed biomass Data sheet: Identifiers for samples and blends, Version 01*, 25/10/2021, DOI: 10.24406/fordatis/156

[2] Heil, Volker; *BioMates Data Management Plan – Level 2: Coding of identifiers for WP1-samples and -blends – Version 02*, 08/04/2021, DOI: 10.24406/fordatis/167