Eurofins Umwelt Ost GmbH - Lindenstraße 11 - Gewerbegebiet Freiberg Ost -
09627 Bobritzsch-Hilbersdorf

Brodie Biomass Ltd.
Squires Farm
Logmore Lane
RH4 3JL Dorking
UNITED KINGDOM

Title :	**Extract from (Batch): AR-25-FR-056367-01 (12536998)**
EOL Order Code:	**006-10544-126171**
Test report number :	**EX-25-FR-002976-01**
Project name :	**Sample ID sp000235 Batch ID ba000231**
Number of samples :	**1**
Sample type:	**biochar**
Date of sample taking :	**2025-08-06**
Sample Taker:	**not specified, sample(s) were delivered to lab**
Sample reception date :	**2025-08-26**
Sample processing time :	**2025-08-26 - 2025-09-19**

The test results refer exclusively to the samples analyzed as delivered. If sample containers, sample carriers and culture media procured and/or stored by the client are used, an influence on the test results cannot be excluded. If the sampling was not carried out by our laboratory or on our behalf, no guarantee is assumed for this. This also applies to calculation results based on data provided by the client. Details of the sample designation, sampling date, sample type and sample information are provided by the client. This test report is signed with a qualified electronic signature and may only be published completely and unchanged. Extracts or changes require the authorisation of Eurofins Umwelt Ost GmbH in each individual case.

Our General Terms & Conditions of Sale (GTCS) are applicable, as far as no specific agreements do exist. The GTCS are available on http://www.eurofins.de/umwelt/avb.aspx.

Accredited test laboratory according to DIN EN ISO/IEC 17025:2018 DAkkS notification under the DAkkS German Accreditation System for Testing. The laboratory is according (D-PL-14081-01-00) accredited.

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Digitally signed 9/19/2025
Katja Schulze
Analytical Service Manager

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-14081-01-00

											Description		**Sample Batch 50346**		
											Date and time of sample taking		**2025-08-06**		
											EOL Sample Code		**005-10544-481480**		
				Limit values							**Sample number**		**125129404**		
Parameter	**Lab**	**Accr.**	**Method**	1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials	**LOQ**	**Unit**		**ar**	**db**
Biochar properties															
Bulk density < 3 mm	FR		based on VDLUFA-Methode A 13.2.1									kg/m³	-	-	238
Bulk density	FR	F5	DIN EN ISO 17828: 2016-05									kg/m³	-	615	-
specific surface (BET)	SND2/o		DIN ISO 9277: 2014									m²/g	-	-	390.95
water holding capacity (WHC) < 2 mm	FR		DIN EN ISO 14238, A: 2014-03									%	-	-	270.7
Moisture	FR	F5	DIN 51718: 2002-06								0.1	% (w/w)	-	72.3	-
Ash content (550°C)	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	3.8	13.8
Ash content (815°C)	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	2.9	10.4
Total carbon	FR	F5	DIN 51732: 2014-07								0.2	% (w/w)	-	23.9	86.2
carbon (organic)	FR		Calculation									% (w/w)	-	23.6	85.0
Hydrogen	FR	F5	DIN 51732: 2014-07								0.1	% (w/w)	-	0.1	0.5
Total nitrogen	FR	F5	DIN 51732: 2014-07								0.05	% (w/w)	-	0.08	0.30
Sulphur (S), total	FR	F5	DIN 51724-3: 2012-07								0.03	% (w/w)	-	0.04	0.14
Oxygen	FR	F5	DIN 51733: 2016-04									% (w/w)	-	0.7	2.4
Total inorganic carbon (TIC)	FR	F5	DIN 51726: 2004-06								0.1	% (w/w)	-	0.3	1.2
H/C ratio (molar)	FR		Calculation										-	0.07	0.07
H/Corg ratio (molar)	FR		Calculation	< 0.4	< 0.4	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7			-	0.07	0.07
O/C ratio (molar)	FR		Calculation										-	0.022	0.021
Volatile Compounds	FR	F5	DIN 51720: 2001-03								0.2	% (w/w)	-	1.4	5.2
gross calorific value (Ho,V)	FR	F5	DIN 51900: 2023-12								200	kJ/kg	-	8110 [1)]	29300 [1)]
net calorific value (Hu,p)	FR	F5	DIN 51900: 2023-12								200	kJ/kg	-	6320 [2)]	29200 [2)]

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Parameter	**Lab**	**Accr.**	**Method**	1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials	**LOQ**	**Unit**		**ar**	**db**
pH in CaCl2	FR		DIN EN ISO 10390: 2022-08										-	9.2	-
salt content	FR		BGK III. C2: 2006-09								0.005	g/kg	-	4.89	-
salt content	FR		BGK III. C2: 2006-09								0.005	g/l	-	1.16	-
Conductivity at 1,2 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	790
Conductivity at 2 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	980
Conductivity at 3 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	1200
Conductivity at 4 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	1300
Conductivity at 5 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	1500
Crude fibre	FR		VDLUFA manual III: 2014-09									% (w/w) dm	not determined	-	-
Protein, crude	FR		VDLUFA manual III: 2014-09									% (w/w) dm	not determined	-	-
Fat, crude	FR		VDLUFA manual III: 2014-09									% (w/w) dm	not determined	-	-
Crude ash	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	3.8	13.8
HCl-unsoluble ash	ES005 A/o		VDLUFA III 8.2									Ma.-% Raw Product	0.51	-	-
Fluor total (F)	ES005 A/o	WV	VDLUFA III, 17.3.2: 2006	150	150							mg/kg 88% DM	< 10	-	-
Chromium (VI)	FR	F5	DIN EN 16318: 2016-07, Method A								1.0	mg/kg	-	-	< 1.0

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Polychlorinated dibenzodioxins/-furans (17 PCDD/F) by GC-HRMS															
WHO(2005)-PCDD/F TEQ (upper-bound)	SCT6/o	A04	DIN EN 16215: 2020-05	0.75	0.75						0.11	ng/kg 88% DM	17	-	-
WHO(2005)-PCDD/F+PCB TEQ (upper-bound)	SCT6/o	A04	DIN EN 16215: 2020-05	1.25	1.25						0.17	ng/kg 88% DM	17	-	-
Polychlorinated biphenyl (7 PCB) by GC-HRMS															
Total 6 ndl-PCB (upper bound)	SCT6/o	A04	DIN EN 16215: 2020-05	10	10						1.1	µg/kg 88% DM	1.2	-	-
Elements from the micro wave pressure digestion acc. to DIN 22022-1: 2014-07															
Arsenic (As)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			13	13	13	13		0.8	mg/kg	-	-	1.0
Lead (Pb)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			45	120	120	120		2	mg/kg	-	-	5
Cadmium (Cd)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			0.7	1.5	1.5	1.5		0.2	mg/kg	-	-	0.8
Copper (Cu)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	70	70	70	100	100	100		1	mg/kg	-	-	17
Nickel (Ni)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	25	25	25	50	50	50		1	mg/kg	-	-	6
Mercury (Hg)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			0.4	1	1	1		0.2	mg/kg	-	-	< 0.2
Zinc (Zn)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	200	200	200	400	400	400		1	mg/kg	-	-	71
Chromium (Cr)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	70	70	70	90	90	90		1	mg/kg	-	-	24
Boron (B)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								1	mg/kg	-	-	50
Manganese (Mn)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								1	mg/kg	-	-	349
Silver (Ag)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								5	mg/kg	-	-	< 5

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Elements from the pressure digestion acc. to DIN EN 13805: 2014-12															
Arsenic (As)	ES005 A/o	WV	DIN EN ISO 17294-2 (E29): 2017-01	2	2							mg/kg 88% DM	0.60	-	-
Lead (Pb)	ES005 A/o	WV	DIN EN ISO 17294-2 (E29): 2017-01	10	10							mg/kg 88% DM	3.3	-	-
Cadmium (Cd)	ES005 A/o	WV	DIN EN ISO 17294-2 (E29): 2017-01	0.8	0.8							mg/kg 88% DM	0.51	-	-
Mercury (Hg)	ES005 A/o	WV	DIN EN 15763:2010-04	0.1	0.1							mg/kg 88% DM	0.0058	-	-
Macronutrients															
Total nitrogen	FR	F5	DIN 51732: 2014-07								0.5	g/kg	-	0.8	3.0
Macronutrients-LiBO2/Li2B4O7/LiBr-melt of ash 550°C [DIN 51729-11:1998-11] (OS)															
Phosphorus as P2O5	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	4.4
Potassium as K2O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	10.6
Calcium as CaO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	46.6
Magnesium as MgO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	3.8
Sodium as Na2O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	1.4
sulphur as SO3	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	3.3
Elements fr. the borate digestion of ash 550°C acc. to DIN 51729-11:1998-11(OS)															
Iron (Fe)	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	2.8
Silicon (Si)	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	10.7

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Parameter	**Lab**	**Accr.**	**Method**	1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials	**LOQ**	**Unit**		**ar**	**db**
Organic contaminants from toluene extraction acc. to EN 17503 (method 10.2.3)															
Total 8 EFSA-PAH excl. LOQ	FR		calculated	1	1	1	1	1	1	4		mg/kg	-	-	(n. c.) [3]
Total 16 EPA-PAH excl. LOQ	FR		calculated	6 [4]		6 [4]	6 [4]					mg/kg	-	-	3.9
Benzo(e)pyrene	FR	F5	DIN EN 17503, Procedure 10.2.3: 2022-08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.1	mg/kg	-	-	< 0.1
Benzo-(j)-fluoranthene	FR	F5	DIN EN 17503, Procedure 10.2.3: 2022-08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.1	mg/kg	-	-	< 0.1

Explanations

LOQ - Limit of quantification

ar - as received

db - dry basis

Lab - Abbreviation of the performing laboratory

Accr. - Abbreviation of the accreditation of the performing laboratory

Comments for results

[1] (Ho, V) gross calorific value at constant volume, without thermochemical corrections from the halogen contents

[2] (Hu, p) net calorific value at constant pressure, without thermochemical corrections from the halogen contents

[3] not calculable

The parameters identified by ES005A have been performed by the laboratory SGS Analytics Germany GmbH (Jena) (Orlaweg 2, Jena). The accreditation code WV identifies the parameters accredited according to DIN EN ISO/IEC 17025:2018 DAkkS D-PL-14004-10-00 .

The parameters identified by FR have been performed by the laboratory Eurofins Umwelt Ost GmbH (Lindenstraße 11, Gewerbegebiet Freiberg Ost, Bobritzsch-Hilbersdorf). The accreditation code F5 identifies the parameters accredited according to DIN EN ISO/IEC 17025:2018 DAkkS D-PL-14081-01-00 .

The parameters identified by SCT6 have been performed by the laboratory Zentrum für Dioxinanalytik (ZfD) GmbH (Berneckerstraße 17-21, Bayreuth). The accreditation code A04 identifies the parameters accredited according to DIN EN ISO/IEC 17025:2018 DAkkS D-PL-19418-01-00 .

The parameters identified by SND2 have been performed by the laboratory Ruhr Lab GmbH (Glückaufstraße 56, Gelsenkirchen).

/o - The analysis has been outsourced.

Explanations regarding Limits

Analysis performed according to guidelines for a sustainable production of biochar - EBC, Version 10.3E - of 05/04/2023.

EBC (2012-2024) 'European Biochar Certificate - Guidelines for a Sustainable Production of Biochar' Carbon Standards International (CSI), Frick, Switzerland. Version 10.4E from 20th Dec 2024

AR: related to ash

OS: related to original substance

[4] The very low PAH limit values only allow an analytical accuracy of 40% for the limit value: "sum 16 EPA-PAH" of 6 mg/kg which implies an accuracy of ± 2.4 mg/kg db, respectively.

The presentation of comparative values in the analytical report is a service provided by EUROFINS UMWELT. The cited comparative values (limit, guideline or other allocation values) are partially simplified and do not take into account all comments, ancillary provisions and/or exemptions of the corresponding regulations.