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**Carbofex Oy**  
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**FINLAND**

Title : **Analytical Report for Order 12442876**

Test report number : **AR-24-FR-060085-01**

Project name : **ba000061**

Number of samples : **1**

Sample type: **biochar**

Date of sample taking : **2024-09-02**

Sample Taker: **not specified, sample(s) were delivered to lab**

Sample reception date : **2024-10-01**

Sample processing time : **2024-10-01 - 2024-11-04**

The test results solely refer to the analysed test specimen. Unless the sampling was done by our laboratory or in our sub-order the responsibility for the correctness of the sampling is disclaimed. This analytical report is electronically signed and may only be further published completely and unchanged. Extracts or changes require the authorisation of the EUROFINS UMWELT 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.

#### Attachments

*XML\_Export\_AR-24-FR-060085-01.xml*

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Digitally signed 11/5/2024  
Katja Schulze  
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Parameter	Lab	Accr.	Method	Limit values							Description		sp000050		
				1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials	Date and time of sample taking		2024-09-02		
				LOQ	Unit	Sample number			124154196			ar	db		
<b>Biochar properties</b>															
Bulk density < 3 mm	FR		based on VDLUFA-Methode A 13.2.1									kg/m <sup>3</sup>	-	-	208
Bulk density	FR	F5	DIN EN ISO 17828: 2016-05									kg/m <sup>3</sup>	-	189	-
specific surface (BET)	SND2/0		DIN ISO 9277: 2014									m <sup>2</sup> /g	-	-	364.47
water holding capacity (WHC) < 2 mm	FR		DIN EN ISO 14238, A: 2014-03									%	-	-	343.2
Moisture	FR	F5	DIN 51718: 2002-06								0.1	% (w/w)	-	11.8	-
Ash content (550°C)	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	2.9	3.3
Ash content (815°C)	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	2.1	2.4
Total carbon	FR	F5	DIN 51732: 2014-07								0.2	% (w/w)	-	82.0	92.9
carbon (organic)	FR		Calculation									% (w/w)	-	81.8	92.6
Hydrogen	FR	F5	DIN 51732: 2014-07								0.1	% (w/w)	-	1.0	1.1
Total nitrogen	FR	F5	DIN 51732: 2014-07								0.05	% (w/w)	-	0.50	0.57
Sulphur (S), total	FR	F5	DIN 51724-3: 2012-07								0.03	% (w/w)	-	< 0.03	< 0.03
Oxygen	FR	F5	DIN 51733: 2016-04									% (w/w)	-	2.6	2.9
Total inorganic carbon (TIC)	FR	F5	DIN 51726: 2004-06								0.1	% (w/w)	-	0.2	0.3
carbonate-CO2	FR	F5	DIN 51726: 2004-06								0.4	% (w/w)	-	0.8	0.9
H/C ratio (molar)	FR		Calculation										-	0.15	0.15
H/Corg ratio (molar)	FR		Calculation	< 0.4	< 0.4	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7			-	0.15	0.15
O/C ratio (molar)	FR		Calculation										-	0.024	0.023
Volatile Compounds	FR	F5	DIN 51720: 2001-03								0.2	% (w/w)	-	4.2	4.7
gross calorific value (Ho,V)	FR	F5	DIN 51900: 2023-12								200	kJ/kg	-	29500 <sup>1)</sup>	33400 <sup>1)</sup>
net calorific value (Hu,p)	FR	F5	DIN 51900: 2023-12								200	kJ/kg	-	28900 <sup>2)</sup>	33100 <sup>2)</sup>
pH in CaCl2	FR		DIN ISO 10390: 2005-12										-	8.5	-

Parameter	Lab	Accr.	Method	Limit values							Description		sp000050		
				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	2024-09-02		
				Sample number											124154196
													ar	db	
salt content	FR		BGK III. C2: 2006-09								0.005	g/kg	-	1.22	-
salt content	FR		BGK III. C2: 2006-09								0.005	g/l	-	0.254	-
Conductivity at 1,2 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	110
Conductivity at 2 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	140
Conductivity at 3 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	190
Conductivity at 4 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	190
Conductivity at 5 t pressure	FR		Internal Method SAA-H-Lf-Pflanzenkohle.040								0.01	mS/cm	-	-	230
Protein, crude	FR		VDLUFA Methodenbuch Band III: 2014-09									% (w/w) dm	not determined	-	-
Crude fibre	FR		VDLUFA Methodenbuch Band III: 2014-09									% (w/w) dm	not determined	-	-
Fat, crude	FR		VDLUFA Methodenbuch Band III: 2014-09									% (w/w) dm	not determined	-	-
Crude ash	FR	F5	DIN 51719: 1997-07								0.1	% (w/w)	-	2.9	3.3
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, Verf. A								0.1	mg/kg	-	-	< 0.1
<b>Polychlorinated dibenzodioxins/-furans (17 PCDD/F) by GC-HRMS</b>															
2,3,7,8-TetraCDD	SCT6/o	A04	DIN EN 16215: 2020-05								0.03	ng/kg 88% DM	< 0.03	-	-

Parameter	Lab	Accr.	Method	Limit values							Description		sp000050			
				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	2024-09-02			
				Sample number											124154196	
													ar	db		
1,2,3,7,8-PentaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.03	ng/kg 88% DM	< 0.03	-	-
1,2,3,4,7,8-HexaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
1,2,3,6,7,8-HexaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
1,2,3,7,8,9-HexaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
1,2,3,4,6,7,8-HeptaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.13	ng/kg 88% DM	0.27	-	-
OctaCDD	SCT6/o	A04	DIN EN 16215: 2020-05									0.44	ng/kg 88% DM	2.9	-	-
2,3,7,8-TetraCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	0.16	-	-
1,2,3,7,8-PentaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.03	ng/kg 88% DM	< 0.03	-	-
2,3,4,7,8-PentaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.03	ng/kg 88% DM	0.22	-	-
1,2,3,4,7,8-HexaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	0.14	-	-
1,2,3,6,7,8-HexaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
1,2,3,7,8,9-HexaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
2,3,4,6,7,8-HexaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.04	ng/kg 88% DM	< 0.04	-	-
1,2,3,4,6,7,8-HeptaCDF	SCT6/o	A04	DIN EN 16215: 2020-05									0.22	ng/kg 88% DM	< 0.22	-	-

Parameter	Lab	Accr.	Method	Limit values							Description		sp000050		
				1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials	Date and time of sample taking		2024-09-02		
				LOQ	Unit	Sample number			124154196			ar	db		
1,2,3,4,7,8,9-HeptaCDF	SCT6/o	A04	DIN EN 16215: 2020-05								0.22	ng/kg 88% DM	< 0.22	-	-
OctaCDF	SCT6/o	A04	DIN EN 16215: 2020-05								0.44	ng/kg 88% DM	< 0.44	-	-
WHO(2005)-PCDD/F TEQ (lower-bound)	SCT6/o	A04	DIN EN 16215: 2020-05									ng/kg 88% DM	0.10	-	-
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	0.19	-	-
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	0.61	-	-
<b>Polychlorinated biphenyl (12 WHO PCB) by GC-HRMS</b>															
PCB 77	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.4	ng/kg 88% DM	10	-	-
PCB 81	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								0.40	ng/kg 88% DM	0.50	-	-
PCB 105	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								15	ng/kg 88% DM	190	-	-
PCB 114	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	6.0	-	-
PCB 118	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								44	ng/kg 88% DM	1500	-	-
PCB 123	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	5.0	-	-
PCB 126	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								0.40	ng/kg 88% DM	3.0	-	-
PCB 156	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	840	-	-

											Description		sp000050		
											Date and time of sample taking		2024-09-02		
											Sample number		124154196		
Parameter	Lab	Accr.	Method	Limit values							LOQ	Unit		ar	db
				1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials					
PCB 157	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	94	-	-
PCB 167	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	490	-	-
PCB 169	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								0.40	ng/kg 88% DM	0.60	-	-
PCB 189	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								4.0	ng/kg 88% DM	210	-	-
WHO(2005)-PCB TEQ (upper-bound)	SCT6/o	A04	Verordnung (EG) Nr. 152/2009								0.06	ng/kg 88% DM	0.42	-	-
WHO(2005)-PCB TEQ (lower-bound)	SCT6/o	A04	Verordnung (EG) Nr. 152/2009									ng/kg 88% DM	0.42	-	-

											Description		sp000050		
											Date and time of sample taking		2024-09-02		
											Sample number		124154196		
Parameter	Lab	Accr.	Method	Limit values							LOQ	Unit	ar	db	
				1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials					
<b>Polychlorinated biphenyl (7 PCB) by GC-HRMS</b>															
PCB 28	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	0.33	-	-
PCB 180	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	7.4	-	-
PCB 101	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	4.5	-	-
PCB 52	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	0.86	-	-
PCB 138	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	6.9	-	-
Total 6 ndl-PCB (upper bound)	SCT6/o	A04	DIN EN 16215: 2020-05	10	10						1.1	µg/kg 88% DM	30	-	-
PCB 153	SCT6/o	A04	DIN EN 16215: 2020-05								0.18	µg/kg 88% DM	9.7	-	-
Total 6 ndl-PCB (lower-bound)	SCT6/o	A04	DIN EN 16215: 2020-05									µg/kg 88% DM	30	-	-

Parameter	Lab	Accr.	Method	Limit values							Description		sp000050					
				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	Date and time of sample taking		124154196			
													Sample number		124154196			
															ar		db	

**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	-	-	< 0.8
Lead (Pb)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			45	120	120	120		2	mg/kg	-	-	< 2
Cadmium (Cd)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01			0.7	1.5	1.5	1.5		0.2	mg/kg	-	-	< 0.2
Copper (Cu)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	70	70	70	100	100	100		1	mg/kg	-	-	15
Nickel (Ni)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	25	25	25	50	50	50		1	mg/kg	-	-	5
Mercury (Hg)	FR	F5	DIN 22022-4: 2001-02			0.4	1	1	1		0.07	mg/kg	-	-	< 0.07
Zinc (Zn)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	200	200	200	400	400	400		1	mg/kg	-	-	104
Chromium (Cr)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01	70	70	70	90	90	90		1	mg/kg	-	-	28
Boron (B)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								1	mg/kg	-	-	12
Manganese (Mn)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								1	mg/kg	-	-	580
Silver (Ag)	FR	F5	DIN EN ISO 17294-2 (E29): 2017-01								5	mg/kg	-	-	< 5

**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	0.23	-	-
Lead (Pb)	ES005 A/o	WV	DIN EN ISO 17294-2 (E29): 2017-01	10	10							mg/kg 88% DM	0.58	-	-
Cadmium (Cd)	ES005 A/o	WV	DIN EN ISO 17294-2 (E29): 2017-01	0.8	0.8							mg/kg 88% DM	0.0057	-	-
Mercury (Hg)	ES005 A/o	WV	DIN EN 15763:2010-04	0.1	0.1							mg/kg 88% DM	0.0052	-	-



Parameter	Lab	Accr.	Method	Limit values							Description		sp000050		
				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	Date and time of sample taking		124154196
														ar	db

**Elements fr. the borate digestion of ash 550 °C acc. to DIN 51729-11:1998-11(AR)**

Calcium as CaO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	38.1
Iron as Fe <sub>2</sub> O <sub>3</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	8.8
Potassium as K <sub>2</sub> O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	9.4
Magnesium as MgO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	4.9
Sodium as Na <sub>2</sub> O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	0.6
Phosphorus as P <sub>2</sub> O <sub>5</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	4.6
sulphur as SO <sub>3</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	0.6
Silicon as SiO <sub>2</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	% (w/w)	-	-	5.5

**Macronutrients**

Total nitrogen	FR	F5	DIN 51732: 2014-07								0.5	g/kg	-	5.0	5.7
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**Macronutrients-LiBO<sub>2</sub>/Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub>/LiBr-melt of ash 550°C [DIN 51729-11:1998-11] (OS)**

Phosphorus as P <sub>2</sub> O <sub>5</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	1.5
Potassium as K <sub>2</sub> O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	3.1
Calcium as CaO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	12.7
Magnesium as MgO	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	1.6
Sodium as Na <sub>2</sub> O	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	0.2
sulphur as SO <sub>3</sub>	FR	F5	DIN EN ISO 11885 (E22): 2009-09								0.1	g/kg	-	-	0.2

Parameter	Lab	Accr.	Method	Limit values							Description		sp000050			
				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	2024-09-02			
				Sample number											124154196	
															ar	db
<b>Elements fr. the borate digestion of ash 550°C acc. to DIN 51729-11:1998-11(OS)</b>																
Iron (Fe)	FR	F5	DIN EN ISO 11885 (E22): 2009-09									0.1	g/kg	-	-	2.0
Silicon (Si)	FR	F5	DIN EN ISO 11885 (E22): 2009-09									0.1	g/kg	-	-	0.9
<b>Organic contaminants from toluene extraction acc. to EN 17503 (method 10.2.3)</b>																
Naphthalene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	4.3
Acenaphthylene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.2
Acenaphthene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.2
Fluorene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.2
Phenanthrene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.4
Anthracene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Fluoranthene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.4
Pyrene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	0.2
Benz(a)anthracene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Chrysene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Benzo(b)fluoranthene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Benzo(k)fluoranthene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Benzo(a)pyrene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Indeno(1,2,3-cd)pyrene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1
Dibenz(a,h)anthracene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08									0.1	mg/kg	-	-	< 0.1

											Description		sp000050		
											Date and time of sample taking		2024-09-02		
											Sample number		124154196		
Parameter	Lab	Accr.	Method	Limit values							LOQ	Unit	ar	db	
				1) EBC-FeedPlus	2) EBC-Feed	3) EBC-Agro Organic	4) EBC-Agro	5) EBC-Urban	6) EBC-Consumer Materials	7) EBC-Basic Materials					
Benzo(g,h,i)perylene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08								0.1	mg/kg	-	-	< 0.1
Total 8 EFSA-PAH excl. LOQ	FR		calculated	1	1	1	1	1	1	4		mg/kg	-	-	(n. c.) <sup>3)</sup>
Total 16 EPA-PAH excl. LOQ	FR		calculated	6 <sup>4)</sup>		6 <sup>4)</sup>	6 <sup>4)</sup>					mg/kg	-	-	5.9
Benzo(e)pyrene	FR	F5	DIN EN 17503, Verfahren 10.2.3: 2022-08	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.1	mg/kg	-	-	< 0.1
Benzo-(j)-fluoranthen	FR	F5	DIN EN 17503, Verfahren 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

<sup>1)</sup> (Ho, V) gross calorific value at constant volume, without thermochemical corrections from the halogen contents

<sup>2)</sup> (Hu, p) net calorific value at constant pressure, without thermochemical corrections from the halogen contents

<sup>3)</sup> not calculable

not determined:

These methods apply for animal feed conventional type. The methods are not validated for the matrix biochar and can lead to implausible results.

"Crude protein, crude fiber and crude fat are completely decomposed in the course of complete pyrolysis and are therefore no longer present in biochar. A biochar is considered to be completely pyrolyzed if the H/Corg ratio is <0.4, which is the prerequisite for EBCFeed and EBC-FeedPlus certification. Thus, the analysis of crude protein, crude fiber and crude fat is not required and set by definition as 0 g kg<sup>-1</sup>." [1]

[1] EBC (2012-2023) 'European Biochar Certificate - Guidelines for a Sustainable Production of Biochar.' Carbon Standards International (CSI), Frick, Switzerland. (<http://european-biochar.org>). Version 10.3E from 05th Apr 2023

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.

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  $\pm 2.4$  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.