

Control Laboratories

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Account No:
 11059
 Batch:
 JUN 20 D2
 CODE:
 BioChar IBI

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Date Received: 6/15/2020
 Sample ID: 2005-4-03
 Lab ID. Number: 0060450-01

International BioChar Initiative (IBI) Laboratory Tests for Certification Program

	Dry Basis Unless Stated: Range	Units	Method
Moisture (time of analysis)	23.8	% wet wt.	ASTM D1762-84 (105c)
Bulk Density	6.5	lb/cu ft	
Organic Carbon	83.8	% of total dry mass	Dry Combust-ASTM D 4373
Hydrogen/Carbon (H:C)	0.24 0.7 Max	Molar Ratio	H dry combustion/C(above)
Total Ash	8.3	% of total dry mass	ASTM D-1762-84
Total Nitrogen	0.67	% of total dry mass	Dry Combustion
pH value	9.48	units	4.11USCC:dil. Rajkovich
Electrical Conductivity (EC20 w/w)	0.902	dS/m	4.10USCC:dil. Rajkovich
Liming (neut. Value as-CaCO3)	9.9	%CaCO3	AOAC 955.01
Carbonates (as-CaCO3)	5.7	%CaCO3	ASTM D 4373
Butane Act.	10.1	g/100g dry	ASTM D 5742-95
Surface Area Correlation	456	m2/g dry	G

All units mg/kg dry unless stated:		Range of		Reporting		Particle Size Distribution		
	Results	Max. Levels	Limit (ppm)	Method		Results	Units	Method
Arsenic (As)	2.4	13 to 100	0.94	J	< 0.5mm	6.2 percent	F	
Cadmium (Cd)	ND	1.4 to 39	0.38	J	0.5-1mm	8.1 percent	F	
Chromium (Cr)	6.6	93 to 1200	0.94	J	1-2mm	53.1 percent	F	
Cobalt (Co)	2.2	34 to 100	0.94	J	2-4mm	31.8 percent	F	
Copper (Cu)	22.8	143 to 6000	0.94	J	4-8mm	0.8 percent	F	
Lead (Pb)	0.8	121 to 300	0.38	J	8-16mm	0.0 percent	F	
Molybdenum (Mo)	ND	5 to 75	0.94	J	16-25mm	0.0 percent	F	
Mercury (Hg)	ND	1 to 17	0.002	EPA 7471	25-50mm	0.0 percent	F	
Nickel (Ni)	7.9	47 to 420	0.94	J	>50mm	0.0 percent	F	
Selenium (Se)	ND	2 to 200	1.88	J	Basic Soil Enhancement Properties			
Zinc (Zn)	14.1	416 to 7400	1.88	J	Total (K)	8932 mg/kg	E	
Boron (B)	24.3	Declaration	9.42	TMECC	Total (P)	843 mg/kg	E	
Chlorine (Cl)	157	Declaration	20.0	TMECC	Ammonia (NH4-N)	8.4 mg/kg	A	
Sodium (Na)	ND	Declaration	941.6	E	Nitrate (NO3-N)	3.0 mg/kg	A	
Iron (Fe)	2893	Declaration	47.1	E	Organic (Org-N)	6679 mg/kg	Calc.	
Manganese (Mn)	488	Declaration	0.94	J	Volatile Matter	19.3 percent dw	D	

* "ND" stands for "not detected" which means the result is below the reporting limit.

Method A Rayment & Higginson

D ASTM D1762-84

E EPA3050B/EPA 6010

F ASTM D 2862 Granular

G Butane Activity Surface Area Correlation Based on McLaughlin, Shields, Jagiello, & Thiele's 2012 paper: Analytical Options for Biochar Adsorption and Surface Area

J EPA3050B/EPA 6020

Analyst: Nik Zumberae

