

Control Laboratories

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Account No:
 10128
 Batch:
 MAR 20 C
 CODE:
 BioChar IBI

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Date Received: 3/16/2020
 Sample ID: Rogue Biochar (Granular)
 Lab ID. Number: 0030414-01

International BioChar Initiative (IBI) Laboratory Tests for Certification Program

	Dry Basis Unless Stated:	Range	Units	Method
Moisture (time of analysis)	65.8		% wet wt.	ASTM D1762-84 (105c)
Bulk Density	5.8		lb/cu ft	
Organic Carbon	83.9		% 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	7.3		% of total dry mass	ASTM D-1762-84
Total Nitrogen	1.1		% of total dry mass	Dry Combustion
pH value	9.48		units	4.11USCC:dil. Rajkovich
Electrical Conductivity (EC20 w/w)	1.176		dS/m	4.10USCC:dil. Rajkovich
Liming (neut. Value as-CaCO3)	10.0		%CaCO3	AOAC 955.01
Carbonates (as-CaCO3)	5.6		%CaCO3	ASTM D 4373
Butane Act.	9.3		g/100g dry	ASTM D 5742-95
Surface Area Correlation	428		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)	1.5	13 to 100	0.75	J	< 0.5mm	4.0 percent	F	
Cadmium (Cd)	ND	1.4 to 39	0.30	J	0.5-1mm	2.6 percent	F	
Chromium (Cr)	3.9	93 to 1200	0.75	J	1-2mm	34.1 percent	F	
Cobalt (Co)	1.5	34 to 100	0.75	J	2-4mm	56.5 percent	F	
Copper (Cu)	16.6	143 to 6000	0.75	J	4-8mm	2.8 percent	F	
Lead (Pb)	1.0	121 to 300	0.30	J	8-16mm	0.0 percent	F	
Molybdenum (Mo)	ND	5 to 75	0.75	J	16-25mm	0.0 percent	F	
Mercury (Hg)	ND	1 to 17	0.001	EPA 7471	25-50mm	0.0 percent	F	
Nickel (Ni)	5.2	47 to 420	0.75	J	>50mm	0.0 percent	F	
Selenium (Se)	ND	2 to 200	1.51	J	Basic Soil Enhancement Properties			
Zinc (Zn)	17.6	416 to 7400	1.51	J	Total (K)	9493 mg/kg	E	
Boron (B)	22.2	Declaration	7.54	TMECC	Total (P)	1033 mg/kg	E	
Chlorine (Cl)	310	Declaration	20.0	TMECC	Ammonia (NH4-N)	0.0 mg/kg	A	
Sodium (Na)	ND	Declaration	754.1	E	Nitrate (NO3-N)	1.2 mg/kg	A	
Iron (Fe)	1618	Declaration	37.7	E	Organic (Org-N)	11105 mg/kg	Calc.	
Manganese (Mn)	438	Declaration	0.75	J	Volatile Matter	19.9 percent dw	D	

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

Method A Rayment & Higginson G Butane Activity Surface Area Correlation Based on McLaughlin, Shields, Jagiello, & Thiele's 2012 paper: Analytical Options for Biochar Adsorption and Surface Area
 D ASTM D1762-84 & Thiele's 2012 paper: Analytical Options for Biochar Adsorption and Surface Area
 E EPA3050B/EPA 6010 J EPA3050B/EPA 6020
 F ASTM D 2862 Granular

Analyst: Nik Zumberae

