

Control Laboratories

42 Hangar Way
 Watsonville, CA 95076
 www.biocharlab.com
 Tel: 831 724-5422
 Fax: 831 724-3188

Account No:
 xxxxxxxxxxxx
 Batch:
 April 2016 A
 CODE:
 BioChar IBI

292 Main Street
 Cold Spring, NY 10516

Date Received: 3/31/2016
 Sample ID: Biochar 1
 Lab ID. Number: xxxxxxxxxxxxxxxxxxxxxx

International BioChar Initiative (IBI) Laboratory Tests for Certification Program

	Dry Basis Unless Stated: Range	Units	Method
Moisture (time of analysis)	27.2	% wet wt.	ASTM D1762-84 (105c)
Bulk Density	13.8	lb/cu ft	
Organic Carbon	87.3	% of total mass	Dry Combust-ASTM D 4373
Hydrogen/Carbon (H:C)	0.19 0.7 Max	Molar Ratio	H dry combustion/C(above)
Total Ash	6.1	% of total mass	ASTM D-1762-84
Total Nitrogen	0.71	% of total mass	Dry Combustion
pH value	10.10	units	4.11USCC:dil. Rajkovich
Electrical Conductivity (EC20 w/w)	1.050	dS/m	4.10USCC:dil. Rajkovich
Liming (neut. Value as-CaCO3)	7.1	%CaCO3	AOAC 955.01
Carbonates (as-CaCO3)	5.5	%CaCO3	ASTM D 4373
Butane Act.	9.0	g/100g dry	ASTM D 5742-95
Surface Area Correlation	420	m2/g dry	G

	All units mg/kg dry unless stated:		Reporting		Particle Size Distribution		
	Results	Range of Max. Levels	Limit (ppm)	Method	Results	Units	Method
Arsenic (As)	ND	13 to 100	0.84	J	< 0.5mm	5.0 percent	F
Cadmium (Cd)	ND	1.4 to 39	0.33	J	0.5-1mm	29.7 percent	F
Chromium (Cr)	5.3	93 to 1200	0.84	J	1-2mm	58.9 percent	F
Cobalt (Co)	ND	34 to 100	0.84	J	2-4mm	5.4 percent	F
Copper (Cu)	6.9	143 to 6000	0.84	J	4-8mm	0.8 percent	F
Lead (Pb)	0.51	121 to 300	0.33	J	8-16mm	0.3 percent	F
Molybdenum (Mo)	ND	5 to 75	0.84	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)	2.4	47 to 420	0.84	J	>50mm	0.0 percent	F
Selenium (Se)	ND	2 to 200	1.67	J	Basic Soil Enhancement Properties		
Zinc (Zn)	95.3	416 to 7400	1.67	J	Total (K)	8706 mg/kg	E
Boron (B)	10.1	Declaration	8.36	TMECC	Total (P)	500 mg/kg	E
Chlorine (Cl)	350	Declaration	20.0	TMECC	Ammonia (NH4-N)	6.4 mg/kg	A
Sodium (Na)	ND	Declaration	836.1	E	Nitrate (NO3-N)	0.9 mg/kg	A
Iron (Fe)	375	Declaration	41.8	E	Organic (Org-N)	7067 mg/kg	Calc.
Manganese (Mn)	753	Declaration	0.84	J	Volatile Matter	14.0 percent dw	D

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

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

Analyst: Nik Zumberge

