

Control Laboratories

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

John Satterfield

805 Bluebonnet
Hughes Springs, TX 75656

Date Received: 11/11/2021
Sample ID: Wonderchar PS SA H
Lab ID. Number: 1110290-01

Account No:
11609
Batch:
NOV 21 C
CODE:
BioChar IBI

Rev.1
Added Ca, Mg

International BioChar Initiative (IBI) Laboratory Tests for Certification Program

	Dry Basis Unless Stated: Range	Units	Method
Moisture (time of analysis)	1.6	% wet wt.	ASTM D1762-84 (105c)
Bulk Density	19.1	lb/cu ft	
Organic Carbon	84.5	% of total dry mass	Dry Combust-ASTM D 4373
Hydrogen/Carbon (H:C)	0.44 0.7 Max	Molar Ratio	H dry combustion/C(above)
Total Ash	5.8	% of total dry mass	ASTM D-1762-84
Total Nitrogen	0.84	% of total dry mass	Dry Combustion
pH value	9.04	units	4.11USCC:dil. Rajkovich
Electrical Conductivity (EC20 w/w)	0.399	dS/m	4.10USCC:dil. Rajkovich
Liming (neut. Value as-CaCO3)	7.9	%CaCO3	AOAC 955.01
Carbonates (as-CaCO3)	1.8	%CaCO3	ASTM D 4373
Butane Act.	4.0	g/100g dry	ASTM D 5742-95
Surface Area Correlation	262	m2/g dry	G

All units mg/kg dry unless stated:					Particle Size Distribution			
		Results	Range of Max. Levels	Reporting Limit (ppm)	Method	Results	Units	Method
Arsenic	(As)	ND	13 to 100	0.45	J	< 0.5mm	0.1 percent	F
Cadmium	(Cd)	0.20	1.4 to 39	0.18	J	0.5-1mm	0.7 percent	F
Chromium	(Cr)	29.7	93 to 1200	0.45	J	1-2mm	31.3 percent	F
Cobalt	(Co)	1.1	34 to 100	0.45	J	2-4mm	66.6 percent	F
Copper	(Cu)	9.7	143 to 6000	0.45	J	4-8mm	1.3 percent	F
Lead	(Pb)	0.54	121 to 300	0.18	J	8-16mm	0.0 percent	F
Molybdenum	(Mo)	3.3	5 to 75	0.45	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)	20.8	47 to 420	0.45	J	>50mm	0.0 percent	F
Selenium	(Se)	ND	2 to 200	0.90	J	Basic Soil Enhancement Properties		
Zinc	(Zn)	43.8	416 to 7400	0.90	J	Total (Ca)	11910 mg/kg	E
Boron	(B)	38.9	Declaration	4.51	TMECC	Total (Mg)	934 mg/kg	E
Chlorine	(Cl)	24.2	Declaration	20.0	TMECC	Total (K)	10554 mg/kg	E
Sodium	(Na)	ND	Declaration	450.9	E	Total (P)	1469 mg/kg	E
Iron	(Fe)	1037	Declaration	22.5	E	Ammonia (NH4-N)	20.2 mg/kg	A
Manganese	(Mn)	96.8	Declaration	0.45	J	Nitrate (NO3-N)	1.4 mg/kg	A
						Organic (Org-N)	8428 mg/kg	Calc.
						Volatile Matter	16.5 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 Zumberge