

Control Laboratories

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

Account No:
11941
Batch:
JUL 24 B
CODE:
BioChar IBI

Peter Bendorf
XLII BioChar Inc.
P.O. Box 662
Lakeside, MT 59922

Date Received: 7/9/2024
Sample ID: DDGS Biochar
Lab ID. Number: 4070166-02

International BioChar Initiative (IBI) Laboratory Tests for Certification Program

	Dry Basis Unless Stated: Range	Units	Method
Moisture (time of analysis)	1.5	% wet wt.	ASTM D1762-84 (105c)
Bulk Density	37.4	lb/cu ft	
Organic Carbon	49.4	% of total dry mass	Dry Combust-ASTM D 4373
Hydrogen/Carbon (H:C)	1.51 0.7 Max	Molar Ratio	H dry combustion/C(above)
Total Ash	6.9	% of total dry mass	ASTM D-1762-84
Total Nitrogen	5.38	% of total dry mass	Dry Combustion
pH value	5.03	units	TMECC (2001) 4.11, 1:20 dilution
Electrical Conductivity (EC20 w/w)	2.18	dS/m	TMECC (2001) 4.10, 1:20 dilution
Liming (neut. Value as-CaCO3)	5.7	%CaCO3	AOAC 955.01
Carbonates (as-CaCO3)	0.5	%CaCO3	ASTM D 4373
Butane Act.	0.9	g/100g dry	ASTM D 5742-95
Surface Area Correlation	163	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	0.37	J	< 0.5mm	13.0 percent	F	
Cadmium (Cd)	ND	1.4 to 39	0.15	J	0.5-1mm	38.7 percent	F	
Chromium (Cr)	2.1	93 to 1200	0.37	J	1-2mm	41.9 percent	F	
Cobalt (Co)	ND	34 to 100	0.37	J	2-4mm	6.1 percent	F	
Copper (Cu)	6.8	143 to 6000	0.37	J	4-8mm	0.3 percent	F	
Lead (Pb)	1.6	121 to 300	0.15	J	8-16mm	0.0 percent	F	
Molybdenum (Mo)	1.0	5 to 75	0.37	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)	2.2	47 to 420	0.37	J	>50mm	0.0 percent	F	
Selenium (Se)	ND	2 to 200	0.75	J	Basic Soil Enhancement Properties			
Zinc (Zn)	76.2	416 to 7400	0.75	J	Total (Ca)	912 mg/kg	E	
Boron (B)	9.5	Declaration	3.7	TMECC	Total (Mg)	4454 mg/kg	E	
Chlorine (Cl)	2145	Declaration	20.0	TMECC	Total (K)	15657 mg/kg	E	
Sodium (Na)	2340	Declaration	373	E	Total (P)	10761 mg/kg	E	
Iron (Fe)	1190	Declaration	18.7	E	Ammonia (NH4-N)	181.8 mg/kg	A	
Manganese (Mn)	52.4	Declaration	0.37	J	Nitrate (NO3-N)	1142 mg/kg	A	
					Organic (Org-N)	52446 mg/kg	Calc.	
					Volatile Matter	76.1 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