(605) 368-9007
www.rmsroller-grinder.com
27271 Ironworks Ave. Harrisburg, SD 57032

EQUIPMENT PROPOSAL

Customer Name: Clean Maine Carbon
Date: Jun 5, 2025

OVERVIEW

THIS PROJECT PROPOSAL IS FOR OPTIONS ON EQUIPMENT TO GRIND BIOCHAR FROM 1" CHIPS TO A RANGE OF 200 MICRON D50 AT 5% MOISTURE. THE EQUIPMENT WILL SET UP TO PROCESS 500 LBS/HR.

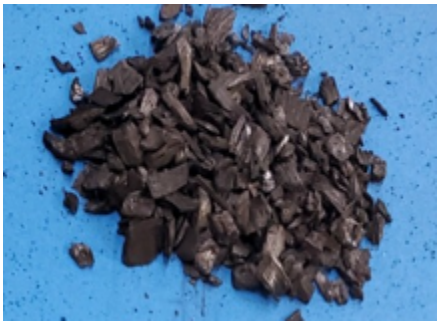
OVERVIEW OF MATERIAL SPECIFICATIONS

TEST MATERIAL PARAMETERS

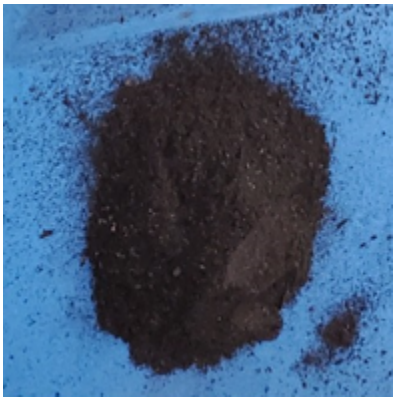
RMS Material Name	1" Biochar Chips
Date Received	N/A
Starting Material Moisture*	0.1%
Ending Material Moisture*	0.1%
Starting Material Bulk Density	9lbs/ft^3
Ending Material Bulk Density	N/A
Starting Material Temperature	70F
Ending Material Temperature	70F

**Material moisture tested on a Mettler Toledo HE53*

STARTING MATERIAL

	SUB 1” COMPLETELY CHARRED BIOCHAR CHIPS DRY

DESIRED MATERIAL

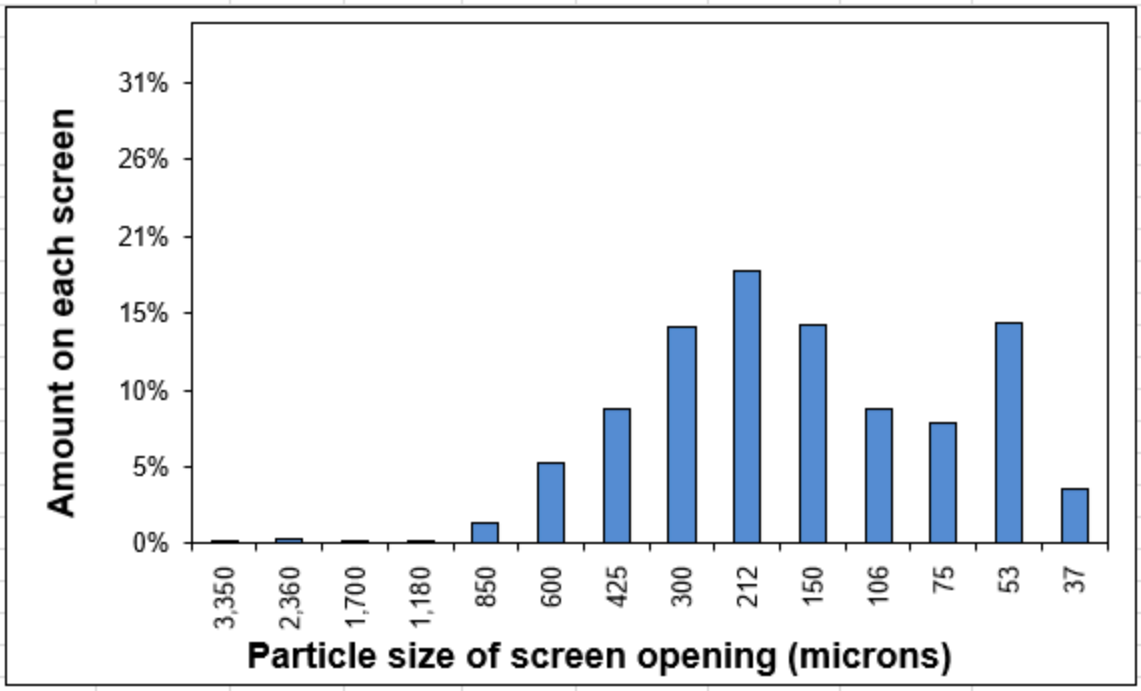
	DESIRED OUTPUT OF 200 MICRON D50. PSD BELOW

Sieve Number	Micron Size	Wt grams	%	% less than
6	3,350	0.22	0.24%	99.76%
8	2,360	0.26	0.28%	99.48%
12	1,700	0.19	0.21%	99.27%
16	1,180	0.13	0.14%	99.13%
20	850	1.34	1.46%	97.67%
30	600	4.98	5.42%	92.25%
40	425	8.3	9.03%	83.22%
50	300	13.4	14.58%	68.64%
70	212	16.81	18.29%	50.35%
100	150	13.53	14.72%	35.63%
140	106	8.26	8.99%	26.64%
200	75	7.47	8.13%	18.51%
270	53	13.61	14.81%	3.70%
pan	37	3.4	3.70%	0.00%
		91.9	100.0%	

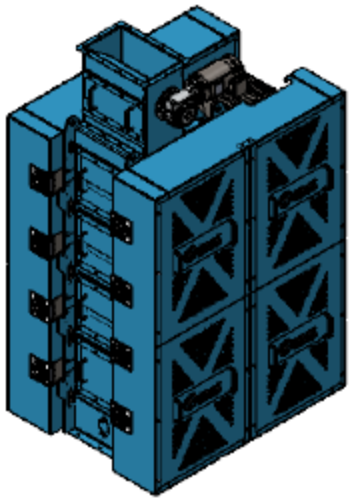
Sieve stack:	A
Specific weight of the grain:	1.32
Particle size (microns):	**195**
Standard deviation:	**2.27**
Less than 300 microns:	**68.64%**
Greater than 1180 microns:	**0.87%**
Particles per gram:	2,126,701.26
Surface area (cm^2/gram):	326.7

Analyzed by:

RMS ROLLER-GRINDER



EQUIPMENT RECOMMENDATIONS



SPECIFICATIONS:

Equipment Name	RMS 9X12 Quad Pair
Number of Roll Sets	1
Throughput	500 Lbs/Hr of Biochar Chips to 200µm D50
Input Hopper	N/A
Feeder	12” Pocket Feeder
Frame Material	Powder Coated Mild Steel
Main Mill Motors	(4) 10HP Motors
Equipment Voltage	230/460V 3 Phase
Control Panel Provided	Customer Provided
Main Service Required	Customer Provided
Equipment Width	48”
Equipment Depth	67”
Equipment Height	107”

Stand	12-18”
Decibel Rating	60-80 dB
Equipment Cost (excluding shipping and accessories)	$60,788.00
Super Sack Unloader 6” Loading Auger 6” Unloading Auger Super Sack Stand for Milled Product	$60,580.00

CONSIDERATIONS

WHEN SWITCHING FROM A HAMMERMILL TO A ROLLER GRINDER THERE IS A FEW CONSIDERATIONS THAT ARE OFTEN OVERLOOKED.

1. THE ROLLER GRINDER WILL NOT REQUIRE AN AIR SWEEP AS IT HAS NO SCREENS.
2. PARTICLE SIZE DISTRIBUTION WILL CHANGE AND TYPICALLY WILL HAVE TIGHTER DISTRIBUTIONS DEPENDING ON SIZES. THIS IS DUE TO THE REDUCTION IN FINES THAT CAN BE GENERATED WITH A HAMMERMILL
3. LOWER EQUIPMENT SOUND LEVELS.
4. LOWER ENERGY REQUIREMENT AT THE SAME MICRON SIZE. IN MOST APPLICATIONS A ROLLER GRINDER OR VERSAMILL WILL REQUIRE LESS ENERGY/TON (kWh/ton) THAN A HAMMERMILL.
5. GAPS CAN CHANGE PARTICLE SIZE. THIS CAN BE DONE WHILE RUNNING/PROCESSING.

MAINTENANCE FOR A ROLLERMILL:

GENERAL MAINTENANCE FOR A ROLLER MILL INCLUDES THE FOLLOWING:

1. GREASING BEARINGS
2. TENSIONING BELTS
3. CHECKING BEARING TEMPERATURES

THESE PROCESSES CAN BE AUTOMATED THROUGH AUXILIARY EQUIPMENT SUCH AS BEARING TEMPERATURE MONITORING SYSTEMS OR AUTOMATIC GREASING SYSTEMS.

PERIODIC MAINTENANCE FOR A ROLLER MILL INCLUDES:

1. ROLL CHANGES
2. BEARING CHANGES
3. BELT CHANGES

TYPICALLY BEARINGS ARE CHANGED WHEN THE ROLL CHANGES ARE DONE. WITH BIOCHAR OUR PILOT MACHINE IS STILL ON ITS ORIGINAL ROLL SET AND THE MACHINE WAS COMMISSIONED 2.5 YEARS AGO.

EQUIPMENT DOES NOT COME WITH A CONTROL PANEL.