



Anaheim Office
Report # 16-349-0012
December 23, 2016

Nature's Agro Products
72 Colonial Way
Aliso Viejo, CA 92656

Attn: Raj

NATURE'S COCO COIR BLOCK

Attached are results of laboratory analysis carried out on a 10 pound block of coco coir submitted to the laboratory on December 14, 2016.

Expansion

The block that was submitted measured 12" X 12" X 5" (0.42 cubic feet) and weighed 11 pounds. Upon hydration and expansion the block yielded 2 ft.³ of loose material.

Laboratory Analysis

All of the measured parameters are typical of a high quality coir fiber.

This is a fibrous material with all of product passing a ¼ inch screen. The dust fraction which passes a 0.50 mm screen is favorably low. The gradation is favorable for use in a wide range of container mixes. The material is expected to have significant water holding capacity.

The product is slightly acid in reaction with the initial measure pH of 6.3. For most crops pH adjustment will not be required.

This is a low salinity product. The salinity, as determined on a saturation extract, is 0.9 dS/m which is favorably low for all crops. Sodium and chloride are favorably low.

The fertility data is typical of coir. Available nitrogen, phosphorus, calcium and iron are relatively low. The material is very well supplied with potassium and has initially adequate magnesium, copper, zinc, manganese and boron. The carbon/nitrogen ratio is slightly elevated and like most coir products there will be a slight nitrogen draw during the first few weeks of production.

As requested heavy metals were determined on the product and all are low.

Use Considerations

Some growers will use coir without dilution as a potting soil. Coir can also be blended with any of the standard amendments such as sphagnum peat, wood and bark residuals, perlite and pumice. The coir is less hydrophobic than sphagnum peat and is usually easier to rewet when dry than sphagnum peat. The coir offers similar water holding characteristics to a high quality sphagnum peat.

Some growers will “buffer” the coir by applying a calcium nitrate solution. This adds both calcium and nitrate and can displace some of the potassium. Another option for offsetting the nitrogen draw is to add 1 – 1.5 lbs. of Nitroform 39-0-0 (28% WIN) per cubic yard of soil mix. Phosphorus can be improved by adding 1 pound triple superphosphate 0-45-0 per cubic yard. Iron can be improved with the addition of 1 pound of iron sulfate per cubic yard. If the grower is using a low calcium or sulfate irrigation water then gypsum is sometimes added at 1 pound per cubic yard.

Typically in a nursery or greenhouse setting, a balanced maintenance fertilization program is used. This can consist of the controlled release fertilizer or liquid feed. If nitrogen, phosphorus and iron are not supplemented as outlined above then the rates of application for these elements is important at the onset of planting.

Coir can also be used as a planter bed amendment. It can be used to improve nutrient and water holding capacity in sandy textured soils or to help break up heavier textured soils. A typical use rate for this type of application 10 – 20 % by volume coir in a coir/soil blend.

If any questions regarding these findings or if we can be of additional assistance please call.



William Darlington, M.S.

COMPOST / AMENDMENT EVALUATION

Send To : Nature's Agro Products 72 Colonial Way Aliso Viejo CA 92656	Project : Nature's Coco Coir Block	Report Number : 16-349-0012 Customer Number : 08999 Date printed : 12/20/2016 Date received : 12/14/2016 Page : 1 of 2 Lab Number : 04838
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Sample Id : **Coco Coir Sample**

Nutrient	Total - Dry Weight	Extractable - Dry Weight	Saturation Extract	Sufficiency Factor
Nitrogen (N)	0.49 %	109 ppm		0.1
NH ₄ -N		79 ppm		
NO ₃ -N		30 ppm		
Phosphorus (P)		112 ppm		0.2
Phosphorus (P ₂ O ₅)		256 ppm		
Potassium (K)		6184 ppm	4.9 meq/L	3.3
Potassium (K ₂ O)		7483 ppm		
Calcium (Ca)		4067 ppm	0.6 meq/L	0.5
Magnesium (Mg)		1298 ppm	0.5 meq/L	1.0
Sodium (Na)			2.4 meq/L	
Sulfur (S)				
Sulfate (SO ₄)			0.6 meq/L	0.2
Chloride (Cl)			4.7 meq/L	
Copper (Cu)		8.7 ppm		1.5
Zinc (Zn)		25 ppm		1.2
Manganese (Mn)		44 ppm		0.9
Iron (Fe)		58 ppm		0.3
Dilute Acid Fe		0.07 %		
Boron (B)			0.21 ppm	0.7

Test	Result
pH (sat paste)	6.3 s.u.
% Half Sat.	541
TEC	433 meq/kg
Qualitative Lime	None
Salinity (EC of sat ext.)	0.9 dS/m
SAR (Sodium adsorption ratio)	3.25
Sodium as % of ECe	24 %
Bulk Density - Dry	131 lbs/yd ³
Bulk Density - As Received	691 lbs/yd ³
Moisture - As Received	81.0 %
Organic	79.0 %
Weight of organic / yd ³	104 lbs/yd ³
Weight of mineral / yd ³	28 lbs/yd ³
C/N Ratio	96.5

Gradation	
Wt Percent Retained 1"	0.0 %
Wt Percent Retained 1/2"	0.0 %
Fraction Passing 1/2 inch Screen - Dry Weight Basis	
Screen Opening	% Passing
Passing 9.5mm	100.0 %
Passing 6.4mm (1/4")	99.5 %
Passing 4.75mm	97.5 %
Passing 2.36mm	83.1 %
Passing 1.00mm	44.8 %
Passing 0.50mm	17.9 %

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Sample Id : **Coco Coir Sample**

POTENTIAL RATE LIMIT FACTORS

Test	% Volume rate limit	Cubic yard amendment per 1000 sf to 6"							
		1	2	3	4	5	6	7	8
		Volume % amendment blend with sandy loam							
		5	11	16	22	27	32	38	43
EC sat. ext.	No Limit								
Sodium sol.	No Limit								
Chloride sol.	No Limit								
Boron sol.	No Limit								
NH ₄ -N	No Limit								
Available									
Nitrogen	No Limit								
PO ₄ P	No Limit								
Copper	No Limit								
Zinc	No Limit								

Rate limit estimates based on amending a non-problematic sandy loam

RELATIVE IMMEDIATE NUTRIENT AND ORGANIC VALUE

* Example Rate 43 %	Slight	Moderate	Abundant
Nitrogen			
Phosphorus	■		
Potassium			■
Calcium	■		
Magnesium	■		
Copper		■	
Zinc		■	
Manganese	■		
Iron	■		
Sulfate			
Organic Matter		■	

* If no chemical characteristics are rate limiting, the example rate is based on organic content of the amendment (up to a max of 43%).

08999
 Nature's Agro Products
 72 Colonial Way
 Aliso Viejo , CA 92656

Project Nature's Coco Coir Block
 Information :

Report Date : 12/23/2016

Report Number : **16-350-0008**

REPORT OF ANALYSIS

Received : 12/15/2016

Lab No : **88293**
 Sample ID : **Coco Coir**

Matrix: **Solids**
 Sampled:

Analytical Method: 6010C **Prep Batch(es):** **L315440** 12/20/16 10:20
Prep Method: 3050B

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Total Arsenic	<1.00	mg/Kg	1.00	1	12/22/16 17:19	CCR	L315917
Total Cadmium	<0.100	mg/Kg	0.100	1	12/22/16 17:19	CCR	L315917
Total Chromium	1.68	mg/Kg	0.250	1	12/22/16 17:19	CCR	L315917
Total Copper	1.36	mg/Kg	0.250	1	12/22/16 17:19	CCR	L315917
Total Molybdenum	<0.250	mg/Kg	0.250	1	12/22/16 17:19	CCR	L315917
Total Nickel	0.843	mg/Kg	0.250	1	12/22/16 17:19	CCR	L315917
Total Lead	0.348	mg/Kg	0.300	1	12/22/16 17:19	CCR	L315917
Total Selenium	<1.00	mg/Kg	1.00	1	12/22/16 17:19	CCR	L315917
Total Zinc	4.32	mg/Kg	0.500	1	12/22/16 17:19	CCR	L315917

Analytical Method: SW-7471A **Prep Batch(es):** **L315689** 12/21/16 13:45
Prep Method: SW-7471A (PREP)

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Mercury (Total)	<0.0133	mg/Kg	0.0133	1	12/22/16 11:12	KKM	L315828

Qualifiers/ Definitions				
*	Outside QC limit		B	Analyte detected in blank
C	GCMS Confirmation Analysis		E	Exceeds calibration range
g	GGA outside QC limits		H	Beyond holding time
J	Estimated Value		M	Minimum value
NA	Not on Scope of Accreditation		NC	Not confirmed
Q	Surrogate Recovery		T	Sample exhibits toxicity
U	Unconfirmed			