Testing Laboratory
Certificate #1552-01

NML

ISTRC NEW MIX LAB, L.L.C.
· 11372 Strang Line Road · Lenexa, KS 66215 · Phone: 913-829-8873 · 800-362-8873 · Fax: 913-829-4013 · e-mail: roppold@istrc.com ·

Report of Test Results

Report To: Mr. David Mayer
MAYER MATERIALS, LLC
Address: 1212 Silver Creek Azle Road
Azle, TX 76020

Report Date: July 6, 2016
Date Received: June 17, 2016
Test Dates: June 17 to 30
Condition of Sample(s): intact

Re: Product Development
Lab ID & Job Sequence: 16060007 A

Moisture/Ash / pH /Organic Content of Organic Soils, Peats & Composts*

Sample # & Type	Sample Description	Moisture Content Oven-Dried Mass**	Ash Content [% by weight]	Organic Matter [% by weight]	pH***	
					H_2O	CaCl
1 O	1/4" Command Compost	84.18	60.54	39.46	6.95	--
2 O	1/8" Command Compost	73.90	65.64	34.36	6.98	--

*ASTM D2974, **ASTM D2974 §6.2, ***ASTM D4872

Water Saturated Volume Weights, Water-Holding Capacity, & Air Capacity*

Sample # & Type	Sample Description	Volume Weights [g/mL]			Water Holding Capacity [%]		Volume Analysis [%]		
		As Recd	Oven Dried	Saturated	Relative to 'as recd' condition	Relative to oven dried condition	Water Content	Solids Content	Air Content
1 O	1/4" Command Compost	0.70	0.38	0.97	38.17	154.47	59.10	27.33	13.57
2 O	1/8" Command Compost	0.68	0.39	0.95	39.57	142.72	55.61	27.83	16.56

*ASTM D2980

Particle Size Analysis*

Sample # & Type	Sample Description	Soil Textural Components [Reported Values are % of the whole]				Sand Distribution by Size Size reported as Mesh # & mm [Value Reported is % Retained]						
		Sand .05 -2.0	**Silt** .002 -05	**Clay** < .002	#10 **Gravel** 2.0 mm	**#18** v. Coarse 1.0 mm	**#35** Coarse 0.5 mm	**#60** Medium 0.25 mm	**#80** Fine 0.18 mm	**#100** Fine 0.15 mm	**#140** v. Fine 0.10 mm	**#270** v. Fine 0.05 mm
	USGA Recommended Specifications for Root Zone Mixes	≥ 89% of Total	≤ 5%	≤ 3%	≤ 3%	≤ 10%	≥ 60% #35 + #60		≤ 20% #80 + #100		≤ 5% #140 + #270 **&** ≤ 10% w/ Silt + Clay	
			≤ 10% w/ #140 + #270		≤ 10% #10 + #18							
1 O	**1/4" Command Compost**	91.81	0.15		6.04	13.16	22.26	26.31	11.62	6.26	7.08	5.12
2 O	**1/8" Command Compost**	97.57	0.43		0.00	6.22	21.03	31.05	15.11	8.71	9.17	6.28

*ASTM F1632 & C136 - Reported values are the average of two test samples

ACCREDITED
Certificate #1552-01

Comments:

1. Two composts were received in the lab. The first step in our analysis was to open the bags, smell, and feel the products. Both smelled like healthy organic earth. Homogeneity was excellent and no clumps were found in either sample. The lack of clumps equates to the production of even and homogeneous sand/compost blends.

2. The organic contents of 39.46% for the 1/4" Command Compost and 34.36% for the 1/8" Command Compost were derived at firing the samples in a furnace at 440 degrees C. A particle size analysis was performed on the ash remaining from each sample. The particle size distribution results appear on Page 2. The particle size distribution is compatible with most USGA sands.

3. Traditionally, root zone mixes have been produced with a peat product as the organic component. Peat products typically have an organic component of approximately 90%, but only 50 to 60 percent of the peat will decompose and act as plant fertilizer. That means that 40 to 50 percent of the peat products remain in the soil. The 40% end is comparable to the tested composts. High quality composts have an advantage over peat products. The active microbial populations immediately create a biologically active soil. We designed the greens mix blends for two golf courses with a high quality, biologically active compost. In both instances the microbially active compost produced superior results. Root structures were deep and dense. They were best described as "brillo pads". The root structures were complex and they were not confined to mere gravitational growth. The depth, density, and structure of the roots was unlike any root development observed with peat products. Furthermore, root depth and density was not confined to the first year. They remained intact for at least the first 3 years. In addition to root depth and density, there appeared to be less disease. The lack of disease pressure in both courses led us to the hypothesis that active aerobic microbial populations either inoculate the turf from disease or the microbial populations suppress disease.

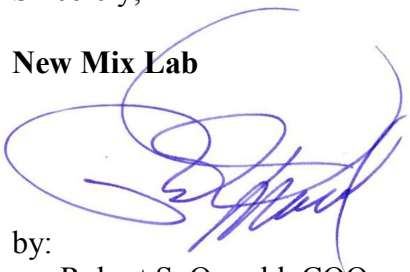
4. The tested composts were able to absorb over 150% and 140%, respectively, of their weight in water. Their "as received" moisture contents were slightly over 38% and 39%, respectively. Both products are capable of adsorbing water and making it available to the root systems.

5. We recommend proceeding with the analysis of both products. The next step is to design root zone mixes for golf green and athletic field construction. A simple, but effective, test/demonstration following the development of suitable mixes is to grow grass on the mixes and observe the development of the turf and its root structures.

[Note: The opinions expressed in this report are outside the scope of the A2LA certification in accordance with ISO/IEC 17025, as amended from time to time.]

Sincerely;

New Mix Lab



by:
Robert S. Oppold, COO
Quality Manager