



Turf & Soil Diagnostics

February 24, 2020

William Hayden
The Hayden Group, Inc.
55 JT Drive
Sheridan, AR 72150

TSD File #20020063

Enclosed are the results of the Premier Select sample received by our laboratory on 2/20/2020. This sample was tested as received, and it is being evaluated for potential use as topdress sand. The USGA recommendations for putting green construction are reference in this report for your information and possible comparison.

We recommend topdressing with a material with a similar or slightly coarser particle size than the existing rootzone to minimize the risk of layering. We further recommend verifying topdress compatibility by submitting a sample of the existing rootzone for particle size testing.

The particle size results indicate that the sample is clean, uniformly graded sand. Most of the particles are in the medium and coarse sand size fractions. There is no silt and clay present. The gradation and uniformity coefficient of this sample meets the USGA recommendations for putting green construction. The gradation suggest that this sand should be compatible for use as topdress of a variety of rootzones, though it may not be compatible with some coarser graded rootzones.

Saturated hydraulic conductivity testing indicates that the sample has infiltration rate that meets USGA recommendations. The results suggest that the sand should supply have potential to supply good drainage.

If you have any questions or need further assistance, please contact us. Samples are generally kept on the premises for 45 days after report date. Thank you for using Turf & Soil Diagnostics, Inc.

Sincerely,

Sam Ferro
President

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Date Received Feb-20-2020
 Date Reported Feb-24-2020
 Facility Product Development

Particle Size Evaluation*

Lab ID#	Sample Name	% Sand 2.0 - 0.05 mm	% Silt 0.05-0.002mm	% Clay < 0.002mm	Gravel 4.0 (5)	Gravel 2.0 (10)	% Retained mm (US sieve)				
							V. Coarse 1.0 (18)	Coarse 0.5 (35)	Medium 0.25 (60)	Fine 0.15 (100)	V. Fine 0.05 (270)
20020063-1	Premier Select	100	< 1.0	< 1.0	0.0	0.0	0.0	38.4	40.8	16.5	4.3
USGA Recommendations for Greens		≥ 92%	≤ 5%	≤ 3%	0%	≤ 3% Gravel ≤ 10% Combined		≥ 60% Combined		≤ 20%	≤ 5%***
Greens Topdress Guidelines [‡]		-	≤ 3%		0%	0%	≤ 5%	≥ 60% Combined		≤ 15%	≤ 5%

[‡] Guidelines Developed by Hummel & Co.

Lab ID#	Sample Name	Uniformity Coefficient Cu	D15 mm	D50 mm	D85 mm	Shape Angularity	Shape Sphericity	USDA Textural Classification	Acid Reaction	pH [‡] 1:1	% Organic Matter Dry Wt.**
20020063-1	Premier Select	2.7	0.21	0.41	0.76	Angular to Sub-Rounded	Low to Medium	Sand	None	5.9	-
USGA Recommendations for Greens		See Below	-	-	-	-	-	-	-	-	-

*ASTM F1632 Method B & Determination of Size Factors SOP

[‡] ASTM D4972 w/ CaCl₂ (pH in H₂O available upon request)

**ASTM F1647 Method A

***Maximum of 10% combined on Very Fine Sand, Silt, and Clay fractions.

USGA Rootzone Coefficient of Uniformity Recommendations: 1.8 to 3.5 for Mixes with Peat; 2.0 to 3.5 for Mixes with Inorganic Amendment or Pure Sand.

Samples were tested as received and comments pertain only to the samples shown.

This report may not be reproduced in part, but only in full.

Sample condition upon receipt was normal.

Samples were received without a transmittal letter.

Reviewed by Sam Fero



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30 cm Physical Evaluation*

Lab ID#	Sample Name	Infiltration Rate* in/hr	Infiltration Rate* cm/hr	Bulk Density g/cc
20020063-1	Premier Select	41.7	105.9	1.52
	USGA Recommendations	≥ 6	≥ 15	-

*ASTM F1815 30 cm Tension

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Sample condition upon receipt was normal.

Samples were received without a transmittal letter.

Reviewed by Sam Fero