



Turf & Soil Diagnostics

January 26, 2017

Paul Hagy
Texas Sports Sands
702 Easy Street
Garland, TX 75042

TSD File #17010041

Enclosed are the results of the Easy Play sample received by our laboratory on 1/23/2016. This sample was tested as received. These results are being compared to the 2004 USGA recommendations for putting green construction.

The sand has a particle size distribution that meets the USGA recommendations, though it is narrowly graded. The sand is clean with little silt and clay present. The sand fraction is very uniform in particle size, with over 80% of the particles in the medium sand size fraction.

The sand particle shape is mixed. The pH value is high.

Performance testing indicates that the sand has saturated hydraulic conductivity (infiltration rate) that is high, but typical of sands with similar gradation. The infiltration rate meets USGA recommendations.

If you have any questions or are in need of 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 Jan-23-2017
 Date Reported Jan-26-2017
 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)
17010041-1	Easy Play	97.9	< 1.0	1.4	0.0	0.0	0.3	9.0	82.0	5.4	1.0
USGA Recommendations for Greens		≥ 92%	≤ 5% Silt	≤ 3% Clay	≤ 3% Gravel ≤ 10% Combined		≥ 60% Combined		≤ 20%	≤ 5%***	

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.**
17010041-1	Easy Play	1.5	0.26	0.35	0.48	Sub-Rounded to Well Rounded	High	Sand	Slight	7.8	

*ASTM F1632 Method A & Determination of Size Factors SOP

‡ASTM D4972 w/ CaCl₂

**ASTM F1647 Method A

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

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 USGA Physical Evaluation*

Lab ID#	Sample Name	Infiltration Rate* in/hr	Infiltration Rate* cm/hr	Bulk Density g/cc
17010041-1	Easy Play	30.9	78.4	1.62
USGA Recommendations for Greens		≥ 6	≥ 15	-

*ASTM F1815 Saturated Hydraulic Conductivity (K-SAT)

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