



Turf & Soil Diagnostics

June 13, 2016

Paul Hagy
Texas Sports Sands
1919 S Shiloh Ste 312-LB2
Garland, TX 75042

RE: South Texas Golf Sand - File #16060009

Dear Mr. Hagy:

The South Texas Golf Sand sample was tested as received. The results are being compared to the USGA recommendations for greens construction.

The particle size distribution of the South Texas Golf Sand sample meets USGA recommendations. There is a minimal amount of silt and clay present with the amounts falling within USGA recommendations. The sand fraction is uniform in particle size, with most of the sand falling into the medium and coarse sand size fractions. The uniformity of the mix particle size is illustrated by the uniformity coefficient (Cu), this value being similar to the typically preferred range of 2 to 3 for greens construction mixes. The lower the Cu, the more uniform the particle size and the greater the compaction resistance.

The USGA performance testing indicates that the mix has a saturated hydraulic conductivity (infiltration) rate that meets USGA recommendations. This suggests that this material should be well drained.

If you have any questions or are in need of further assistance, please do not hesitate to contact us. Samples are generally kept on the premises for 45 days after report date. Thank you for using Turf & Soil Diagnostics, Inc.

Sincerely,

Duane K. Otto
Vice President

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Turf & Soil Diagnostics

Texas Sports Sands
 Paul Hagy
 1919 S Shiloh Ste 312-LB2
 Garland, TX 75042-8234



Date received Jun-02-2016
 Date Reported Jun-13-2016
 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)
16060009-3	South Texas Golf Sand	98.8	< 1.0	< 1.0	0.0	0.0	0.1	25.0	63.8	6.6	3.3
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.**
16060009-3	South Texas Golf Sand	1.9	0.26	0.38	0.66	Angular to Sub-Rounded	Medium	Sand	Slight		

*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 Duane K. Otto



Turf & Soil Diagnostics

Texas Sports Sands
Paul Hagy
1919 S Shiloh Ste 312-LB2
Garland, TX 75042-8234



Date received Jun-2-2016
Date Reported Jun-13-2016
Facility Product Development

30 cm USGA Physical Evaluation*

Lab ID#	Sample Name	Infiltration Rate* in/hr	Infiltration Rate* cm/hr	Bulk Density g/cc
16060009-3	South Texas Golf Sand	37.6	95.6	1.59
	USGA Recommendations for Greens	> 6	> 15	-

*ASTM F1815 Saturated Hydraulic Conductivity (K-SAT)

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Sample condition upon receipt was normal.
Samples were received without a transmittal letter.

Reviewed by Duane K. Otto