



September 22, 2009

Keith Wallis  
U.S. Silica Company  
P.O. Box 98, FM 2749  
Kosse, TX 76653

RE: Product Development - File #09090047

Dear Mr. Wallis:

Enclosed are the laboratory results of the sand sample received by our laboratory on 9/17/09. This sample was tested according to the USGA protocols. These results are being compared to the 2004 USGA recommendations for putting green construction.

The particle size results indicate the Sure Play sample meets USA particle size recommendations for use in greens.

The Sure Play sample does not meet all USGA performance recommendations. The infiltration rate of this sample is 60.3 in/hr, which meets USGA infiltration rate recommendations. The capillary and non-capillary porosity values do not meet the USGA recommendations. It is not unusual for unamended sands to be outside of the USGA performance recommendations. Amendment of this sand with proper ratios of appropriate amendments would likely create a mix that can meet the USGA recommendations.

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 Diagnostics and Design, Inc.

Sincerely,

Sam Ferro  
President

File: U.S. Silica  
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U.S. Silica Company  
Keith Wallis  
PO Box 98, FM 2749  
Kosse, TX 76653  
PHONE: 254-375-2226

Date received Sep-17-2009  
Account No. 06928150  
Date reported Sep-22-2009  
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 2.0 (10)	% Retained on USGA 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)
09090047-1	Sure Play	99.7	< 1.0	< 1.0	0.1	4.3	40.3	44.4	9.6	0.9
USGA Recommendations for Greens		> 92%	< 5%	< 3%	< 3%	< 7%**	> 60% Combined		< 20%	< 5%

Lab ID#	Sample Name	Uniformity Coefficient Cu	D15 mm	D50 mm	D85 mm	Shape Angularity	Shape Sphericity	Acid Reaction	pH <sup>‡</sup> 1:1	% Organic Matter Dry Wt.***

A2LA Testing Certificate Number 797-01 \*ASTM F1632 Method B & Determination of Size Factors SOP †ASTM D4972 w/ H2O \*\*\*ASTM F1647 Method B

\*\*Maximum of 10% combined on Gravel (2.0 mm) and Very Coarse (1.0 mm) 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 with a transmittal letter.

Reviewed by \_\_\_\_\_



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**30 cm USGA Physical Evaluation\***

Lab ID#	Sample Name	Infiltration Rate* in/hr	Particle Density** g/cc	Bulk Density g/cc	Total %	Porosity Water-filled %	Air-filled %	Degree of Saturation %
09090047-1	Sure Play	60.3	2.66	1.56	41.3	9.9	31.5	24
USGA Recommendations		> 6	-	-	35 - 55	15 - 25	15 - 30	-

Air-filled - noncapillary. Water-filled - capillary

Lab ID#	Sample Name	Sand Parameters		Peat Parameters		pH <sup>‡</sup> 1:1	Elec. Cond. mS / cm 1:1	Organic Matter % Dry Wt. <sup>‡‡</sup>
		Bulk Weight LBS / FT3	Moisture % Dry Wt.	Bulk Weight LBS / FT3	Moisture % Wet Wt.			
09090047-1	Sure Play					4.7		

A2LA Testing Certificate Number 797-01

\*ASTM F1815

\*\*SSSA, Methods of Soil Analysis

‡ ASTM D4972 w/ H2O

‡‡ ASTM F1647 Method B

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Reviewed by \_\_\_\_\_