



January 22, 2013

Bob Brunjes
ICON Materials
PO Box 957
Auburn, WA 98071

RE: Product Development Pit #A-464 - File #13010022

Dear Mr. Brunjes:

Enclosed are the laboratory results of the Top Dressing samples received by our laboratory on January 18, 2013. These samples were tested according to the USGA protocols. Where applicable, these results are being compared to the 2004 USGA recommendations for putting green construction.

The particle size results indicate that both the Top Dressing Greens and the Top Dressing Fairway samples meet USGA particle size recommendations for greens. The Top Dressing Fairways sample is slightly coarser and more widely graded than the Top Dressing Greens sample.

The infiltration rate results for both the Top Dressing Greens and Top Dressing Fairway sample meet the USGA performance recommendations. The infiltration rates are relatively high, which is typical for clean sand samples.

We recommend using Top Dressing sands that are compatible with the existing rootzone materials. Compatibility can be verified by comparing the particle size of the existing rootzone to the particle size of the Top Dressing sand. Compatible topdress sands are similar to or coarser than the existing rootzone.

The Top Dressing Greens sample should be compatible with finer USGA greens. This sand should also be acceptable for use as topdress for other finer graded sands and soils.

The Top Dressing Fairway sample should be compatible with most soil based and many sand based fairways, greens and sports fields.

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: ICON Materials
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ICON Materials
Bob Brunjes
PO Box 957
Auburn, WA 98071
PHONE: 253-261-4817

Date received Jan-18-2013
Account Number 01112530
Date Reported Jan-22-2013
Facility Pit #A-464



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 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)
13010022-1	Top Dressing Greens	98.7	< 1.0	< 1.0	0.0	2.4	21.6	54.1	17.5	3.1
13010022-2	Top Dressing Fairways	98.3	< 1.0	< 1.0	0.7	8.3	26.1	43.3	15.8	4.8
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 [‡] 1:1	% Organic Matter Dry Wt.***
13010022-1	Top Dressing Greens	2.3	0.20	0.36	0.67	Sub-Rounded to Angular	Medium to Low	None		
13010022-2	Top Dressing Fairways	2.7	0.20	0.39	0.85	Sub-Rounded to Angular	Medium to Low	None		

A2LA Testing Certificate Number 797-01

*ASTM F1632 Method B & Determination of Size Factors SOP

‡ASTM D4972 w/ CaCl₂

***ASTM F1647 Method A

**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 Sam Ferro



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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
13010022-1	Top Dressing Greens	62.4	158.5	1.48
13010022-2	Top Dressing Fairways	57.0	144.8	1.50
USGA Recommendations		> 6	> 15	-

A2LA Testing Certificate Number 797-01 *ASTM F1815 Saturated Hydraulic Conductivity (K-SAT).

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Samples were received with a transmittal letter.

Reviewed by Sam Ferro