

Sample:

Sample Submitted By:

Date Received:
Testing Dates:
Report Date:


Particle Size Analysis

% Gravel	0.8%
% Sand	97.9%
% Silt	0.8%
% Clay	0.5%

Sand Sieve Size Analysis

(ASTM F-1632-03) Bunker Sand Recommendations\*

Magnified Sand Particles

(No. 10) Gravel (> 2.0 mm)	0.8%	≤ 2%	
(No. 18) Very Coarse Sand (2.0 - 1.0 mm)	7.6%	≤ 15%	
(No. 35) Coarse Sand (1.0 - 0.5 mm)	21.6%	78 - 100%	
(No. 60) Medium Sand (0.5 - 0.25 mm)	36.3%	≤ 5%	
(No. 140) Fine Sand (0.25 - 0.10 mm)	28.8%	≤ 3%	
(No. 270) Very Fine Sand (0.10 - 0.05 mm)	3.6%		
Silt (0.05 - 0.002 mm)	0.8%		
Clay (< 0.002 mm)	0.5%		

\*Brown and Thomas. 1986. Golf Course Management 54:64-70

Angularity / Sphericity	Acid Reaction	D15	D85	Cu
Sub-Rounded / Medium Sphericity	None	0.14 mm	0.80 mm	3.3

Physical Properties

ASTM F-1815-11

Penetrometer Value (kg/cm <sup>2</sup> ) and Interpretation	Crusting Potential	Color* - Dry Hue/Value/Chroma	Color* - Wet Hue/Value/Chroma	Hydraulic Conductivity (in/hr)
3.0 - Very low tendency to bury	None	10YR/8.5/2 very pale brown	10YR/8/2 very pale brown	32.3

\*Munsell Soil Color Chart & Names

Comments

Sand tested as received. To evaluate bunker sands, we use the criteria set by Brown and Thomas in Golf Course Management (1986). These are the standards most widely used in the industry today. This is an acceptable bunker sand according to the criteria set by Brown and Thomas. The percolation rate is above the 20 in/hr minimum suggested by the USGA. The penetrometer value indicates the potential for a "fried-egg" lie to occur. Penetrometer values of 1.8 - 2.4 are considered acceptable and values greater than 2.4 are considered ideal. In general, penetrometer values 2.2 and above are often desirable. Overall playing quality of a bunker sand is a subjective evaluation. Players vary widely in their assessment of what constitutes good playing quality. During the bunker sand selection process, it may be advantageous to install the sand in a fairway bunker and allow players to hit into and out of the bunker and rate the quality of the bunker sand.