Bio retention Materials

Wisconsin Mound Sand

Macka's Wisconsin Mound Sand

Suitable for positioning on the top of the mound on Estuarine Clay.

Wisconsin Mound Sand was analysed for its physical properties and compared against the Specification for 'Standard Design No.1: Wisconisin Mound on Estuarine Clay'. The purpose of the testing was to determine its suitability as a sand fill media layer in a transpiration bed. This layer will be positioned on top of estuarine clay.

Below includes the sand particle size, hydraulic conductivity, D values, and other performance factors and properties.

Particle Size Distribution – Seive Data			
3.35	Medium gravel	96.5	3.5
2.00	Fine gravel	85.9	10.6
1.00	Very coarse sand	72.1	13.8
0.50	Coarse sand	62.4	9.7
0.25	Medium sand	14.7	47.7
0.15	Fine sand	2.8	11.9
0.053	Very fine sand	1.8	0.9
0.002	Silt	-.9	2.7
<0.002	Clay	0%	-1

SATURATED HYDRAULIC CONDUCTIVITY (Ksat)

Result (mm/hr)	Comment	Ksat mm/hr											
663	Acceptable, accelerated range		0	100	200	300	400	500	600 663	700	800	900	1000

OTHER PROPERTIES

Property	Result	Comment	Property	Result	Comment
Particle Density (g/cm3)**:**	2.64	No requirement	**Weathering Stability:** by Sodium Sulphate Soundness		Not determined
Bulk Density (g/cm^3)**:**	1.64	No requirement			
Organic Matter (%w/v)**:**	-	Did not test	**Mechanical Stability:** by LA Abrasion Test		Not determined
pH in H$_2$O (1:5):	7.1	Neutral	**Particle Shape:** Shape not tested, sphericity not tested.		
pH in CaCl$_2$ (1:5):	6.4	Slight acidity	The USGA does not provide any recommendation on particle shape but the following general principles apply. Generally materials that are suitable for Greens construction cover the angular to sub-rounded group. Theoretically sphericity will have an impact but little is known or certainly written about the impact of particle sphericity on turf growth and material function.		
EC (dS/m) (1:5):	<0.02	Very low			
Liming Value (%CaCO3)**:**					

PERFORMANCE FACTORS

BRIDGING FACTOR: A Drainage Gravel compatible with this material will have a D_{15} of ≤ **15.50**

PERMEABILITY FACTOR: A Drainage Gravel compatible with this material will have a D_{15} of ≥ **1.26**

GRADATION INDEX: D_{90}/D_{10}: **11**

COEFFICIENT OF UNIFORMITY: D_{60}/D_{10}: **2.31**   **Generally acceptable**

FINENESS MODULUS: 2.656

D VALUES

D VALUES	
D_{95}:	3.16
D_{90}:	2.52
D_{85}:	1.94
D_{60}:	0.49
D_{50}:	0.44
D_{15}:	0.25
D_{10}:	0.21
D_{5}:	0.17

NB: The information provided in this product guide should be used as a guide only. For further details or for design and application support, please contact us.
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