



Client: Industrias del Cuarzo SA
Date: 15/09/05
Sample: Sand Imosa C
Order No: 6084

SAND IMOSA C

Particle Size Distribution, Particle Shape & pH

Very coarse particles greater than 1.0mm total 0.8%. USGA recommends less than 10%.

Medium/coarse sand particles total 80.2%. USGA recommends greater than 60%.

Fine sand particles are present at 17.3%. USGA recommends less than 20%.

Very fine sand particles are present at 1.1%. USGA recommends less than 5%.

Silt & clay particles are present at 0.6%. USGA recommends less than 8%.

Total very fine particles below 0.15mm is 1.7%. USGA recommends less than 10%.

Sand Imosa C meets the USGA recommendation for particle size distribution completely.

The predominant particle shape is sub-rounded to rounded. This is acceptable.

The pH level is slightly alkaline and acceptable for grass growth at 7.2.

Sand Imosa C is therefore considered suitable for use in a USGA golf green rootzone mix and for topdressing USGA golf greens.



ACCREDITED
 GEOTECHNICAL (PUTTING GREEN MATERIALS)
 Certificate No. 903-01

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006084/1		Samples	PARTICLE SIZE DISTRIBUTION including Silt+Clay	
			Test Report.	Number: 006084/A page 1 of 2
			<i>Ingredients</i>	
100.0%			Sand Imosa C	
			ASTM Method : D4972	
12/09/05			Sample Received Date	
moist			Sample Moisture (very wet, wet, moist, dry, n/a)	
friable			Sample Consistency (hard, friable, plastic, n/a)	
high			Sample Homogeneity (high, medium, low, n/a)	
SR - R			Angularity (VA, A, SA, SR, R, WR, n/a)	
M			Sphericity (H, M, L, n/a)	
			% Stones greater than 10 mm	
			% Coarse Gravel 5 to 10 mm	
			% Fine Gravel 2 to 5 mm	
0.8			% Very Coarse Sand 1 to 2 mm	
21.3			% Coarse Sand 0.5 to 1 mm	
58.9			% Medium Sand 0.25 to 0.5 mm	
17.3			% Fine Sand 0.15 to 0.25 mm	
1.1			% Very Fine Sand 0.05 to 0.15 mm	
0.6			% Silt plus Clay, less than 0.05 mm	
0.8			% greater than 1mm	
80.2			% Coarse + Medium Sand	
1.7			% Fines less than 0.15 mm	
			Percolation Rate (mm/hr)	
			Particle Density (g/cc)	
			Bulk Density (g/cc)	
			Total Porosity (%v/v)	
			Air-filled Porosity (%v/v @ 30 cm tension)	
			Water-filled Porosity (%v/v @ 30 cm tension)	
			Water Retention (%w/w @ 30 cm tension)	
7.2			pH	
			Organic Matter (%w/w)	

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006084/1	USGA Criteria	Samples	Golf Green Physical Properties	
			Test Report.	Number: 006084/A page 2 of 2
ideal	< 10%		Gravel / Very Coarse Sand Criterion	
in range	> 60%		Coarse / Medium Sand Criterion	
in range	< 20%		Fine Sand Criterion	
in range	< 5%		Very Fine Sand Criterion	
in range	< 10%		Total Fines Criterion	
			Normal Percolation Rate Criterion	
			Accelerated Percolation Rate Criterion	
			Total Porosity Criterion	
			Air-filled Porosity Criterion	
			Water-filled Porosity Criterion	

The Golf Green Physical Properties test differs from the USGA test in that silt and clay are not determined independently.

The above classifications state the numerical status (only) of the sample according to the relevant USGA criterion.

The classifications do not imply any statement or opinion by ETL regarding the sample.

A tabulation of the USGA Criteria is available on request as ETL document USGA/002.

Angularity codes: VA, very angular; A, angular; SA, sub-angular; SR, sub-rounded; R, rounded; WR, well rounded.

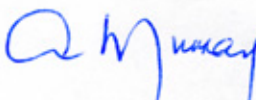
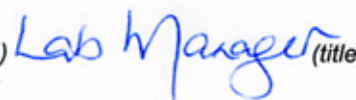
Sphericity codes: H, high; M, medium; L, low.

These results refer only to the samples provided. No guarantee is given that they are representative of the bulk material.

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Industrias del Cuarzo SA

Approved by:  (signature)  (title) 15/9/05 (date) for ETL Ltd.