

**SULEYMAN DEMIREL UNIVERSITY
ENGINEERING AND ARCHITECTURE FACULTY
DEPARTMENT OF MINING ENGINEERING
LABORATORY OF NATURAL STONE TECHNOLOGY
32260 / ISPARTA / TURKEY**

TECHNICAL REPORT

Physical-Mechanical and Chemical Properties of Pearle Limestone
belongs to Finike Company Inc.

December - 2010
ISPARTA/TURKEY



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PREFACE

Various laboratory tests were applied in accordance with TS EN standards (TS-EN 13755, TS 8615, TS-EN 14579, TS-EN 1926, TS-EN 12371, TS-EN 13161, TS-EN 12372, TS 699, TS 2513) and ASTM standards (ASTM C97, ASTM C99, ASTM C170, ASTM C880) to determine the physical and mechanical properties of Pearle Limestone, belongs to Finike Company Inc.. The physical-mechanical and chemical properties are presented in Tables.

Assist.Prof.Dr. Servet DEMİRDAĞ



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Sample Owner Company: **Finike Marble Company Inc.**
Commercial Designation of Sample: **Pearle Limestone**

Date : 08 / 12 / 2010

PHYSICAL and MECHANICAL PROPERTIES						
	METRIC SYSTEM		SI SYSTEM		BRITISH SYSTEM	
Hardness	Mohs	3-3.5	Mohs	3-3.5	Mohs	3-3.5
Bulk Specific Gravity (ASTM C97)						
Dry	gr/cm ³	2.401±0.007	kg/m ³	2401±7	lbs/ft ³	149.89±0.44
Saturated	gr/cm ³	2.428±0.008	kg/m ³	2428±8	lbs/ft ³	151.58±0.50
Density	gr/cm ³	2.746±0.02	kg/m ³	2746±20	lbs/ft ³	171.43±1.25
Water Absorption at Atmospheric Pressure						
by volume	%	7.710±0.170	%	7.710±0.170	%	7.710±0.170
by weight (ASTM C97)	%	3.185±0.073	%	3.185±0.073	%	3.185±0.073
Water Absorption at Boiling Water						
by volume	%	8.456±0.112	%	8.456±0.112	%	8.456±0.112
by weight	%	3.492±0.118	%	3.492±0.118	%	3.492±0.118
Effective Porosity	%	7.710±0.170	%	7.710±0.170	%	7.710±0.170
Real Porosity	%	11.58	%	11.58	%	11.58
Ratio of Fullness	%	88.42	%	88.42	%	88.42
P-Wave Velocity (Vp)	m/s	4179±114	km/s	4.179±0.114	ft/s	13707.12±374
Compressive Strength (TS EN 1926)	kg/cm ²	665.05±41	MPa	65.22±4.01	Psi	9458.98±582
Flexural Strength under Concentrated Load	kg/cm ²	84.88±5.33	MPa	8.32±0.52	Psi	1207.25±75.81
Flexural Strength under Constant Moment	kg/cm ²	85.97±2.77	MPa	8.43±0.27	Psi	1222.75±39.40
Strength to Blow	kg.cm/cm ³	29±1	kg.cm/cm ³	29±1	kg.cm/cm ³	29±1
Abrasion Strength (Bohme)	cm ³ /50cm ²	26.23±3.74	cm ³ /50cm ²	26.23±3.74	cm ³ /50cm ²	26.23±3.74
Tensile Strength (Brazilian Test)	kg/cm ²	26.10±3.98	MPa	2.56±0.39	Psi	371.28±56.56
Point Load Strength Index (Is ₍₅₀₎)	kg/cm ²	26.41±4.89	MPa	2.59±0.48	Psi	375.63±69.62
Schmidt Rebound Hardness		32±1		32±1		32±1

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PHYSICAL and MECHANICAL PROPERTIES						
	METRIC SYSTEM		SI SYSTEM		BRITISH SYSTEM	
Bulk Specific Gravity (ASTM C97)	gr/cm ³	2.428±0.008	kg/m ³	2428±8	lbs/ft ³	151.58±0.50
Water Absorption at Atmospheric Pressure by weight (ASTM C97)	%	3.185±0.073	%	3.185±0.073	%	3.185±0.073
Compressive Strength (ASTM C170)						
Dry	kg/cm ²	727.05±57	MPa	71.30±5.61	Psi	10340.78±813.63
Saturated		645.67±35		63.32±3.45		9183.42±500.36
Modulus of Rupture (ASTM C99)						
Dry	kg/cm ²	87.21±1.89	MPa	8.55±0.19	Psi	1240.39±26.88
Saturated		78.03±2.01		7.65±0.20		1109.82±28.59
Flexural Strength (ASTM C880)						
Dry	kg/cm ²	66.52±2.08	MPa	6.52±0.20	Psi	946.11±29.58
Saturated		56.05±3.20		5.50±0.31		797.20±45.51

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RESULTS of CHEMICAL ANALYSIS

Sample Name : **Pearle Limestone**

(%)	
CaO	56.29
Fe ₂ O ₃	0.0063
SiO ₂	0.28
Al ₂ O ₃	0.07
MgO	0.1864

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