

Natural stones. Real and apparent density & total and open porosity (EN 1936:2006)

Client LEFKON Marble Quarrying & Trading 3 Ifestou St. Maroussi - Athens 151 24 GREECE Tel: +30 210 6197745, E-mail: lefkon@lefkon.eu	Report No 2017/166 Date 21-02-17 Issue 1 <i>Replaces Issue 0</i>
Project Natural Stone Laboratory Testing: "Lefkon Marble"	Project No 010217-E1

Sample description: "Lefkon Marble"	Sample No 010217-1
Sampling date: Dec-16	Receiving date: 01-02-17
Sampling site: Xylalogo Quarry, 59 100 Veria, Greece	Testing date: 03-02-17
Sampling execution: Client	

Room temperature (20 ± 5 °C) T 22.0 °C

Measurements & Calculations

Specimen No			No1	No2	No3	No4	No5	No6
Dry mass	m_d	g	206.6	197.4	184.7	133.6	128.1	106.1
Surface dry & saturated mass	m_s	g	206.6	197.4	184.8	133.6	128.1	106.1
Mass in water	m_h	g	130.6	125.0	116.6	84.1	81.0	67.2
Mass of fraction <63 µm	m_e	g	5.9	12.1	10.2	8.0	11.2	9.0
Pycnometer mass	m_{pc}	g	53.1	56.9	53.9	53.5	55.4	55.0
Pycnometer volume	V_{pc}	ml	100.0	100.0	100.0	100.0	100.0	100.0
Pycnometer & water mass	m_1	g	152.7	156.3	153.3	153.0	154.8	154.5
Specimen, pycn., & H ₂ O mass	m_2	g	156.4	164.0	159.7	158.0	161.8	160.2
Water temperature	T_w	°C	18.3	18.4	18.3	18.3	18.4	18.4
Water density	ρ_{th}	kg/m ³	998.6	998.6	998.6	998.6	998.6	998.6
Pore volume	V_o	ml	0.1	0.0	0.1	0.0	0.0	0.0
Specimen volume	V_b	ml	76.1	72.5	68.2	49.6	47.1	39.0
Apparent density	ρ_b	kg/m ³	2713.2	2719.9	2705.8	2694.4	2715.9	2720.3
Open porosity	ρ_o	%	0.1	0.1	0.1	0.0	0.0	0.1
Real density	ρ_r	kg/m ³	2717.5	2725.8	2710.8	2702.7	2718.9	2723.1
Total porosity	p	%	0.2	0.2	0.2	0.3	0.1	0.1

Results

			μ	s	$se = s/\sqrt{n}$
Apparent density	ρ_b	kg/m ³	2711.6	10.0	4.1
Open porosity	ρ_o	%	0.1	0.0	0.0
Real density	ρ_r	kg/m ³	2716.5	8.5	3.5
Total porosity	p	%	0.2	0.1	0.0