



Pitsa Travertine

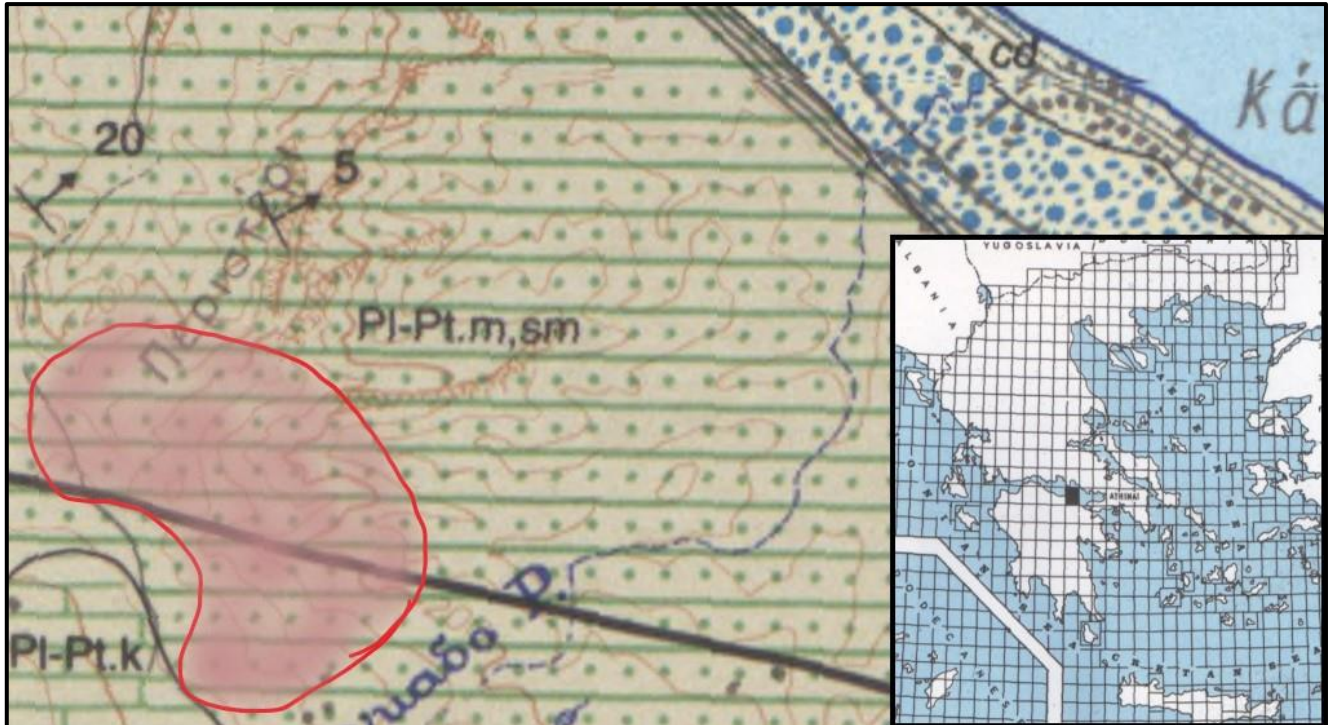


Scale 1:1

Short description: Fine-grained yellowish porous calcitic rock.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Limestone	Travertine	Yellow	Greece	Peloponnese	Corinth	Pitsa

Geological setting



Geology: Pitsa travertine (red marking) belongs to the Loutro formations consisting of alternations of marls, of whitish to yellowish colour. In the upper members they develop in marine formations wherein, loose conglomerate and sand intercalations occur more than 80m thick. Eastwards the lower members of these formations pass into well-bedded marly limestones of lacustrine facies, ranging in thickness up to 60m. Fossils were found only in the upper members consisting mainly of Chlamys fragments.
(Source: Geological Map of Greece 1:50000, Xilokastron Sheet)

Production: Pitsa travertine quarry is near Xylokastro town, in Corinthia in the Peloponnese.

Geological age: Upper Pliocene – Lower Pleistocene

Geological unit: Loutro Formations

Application, use and heritage

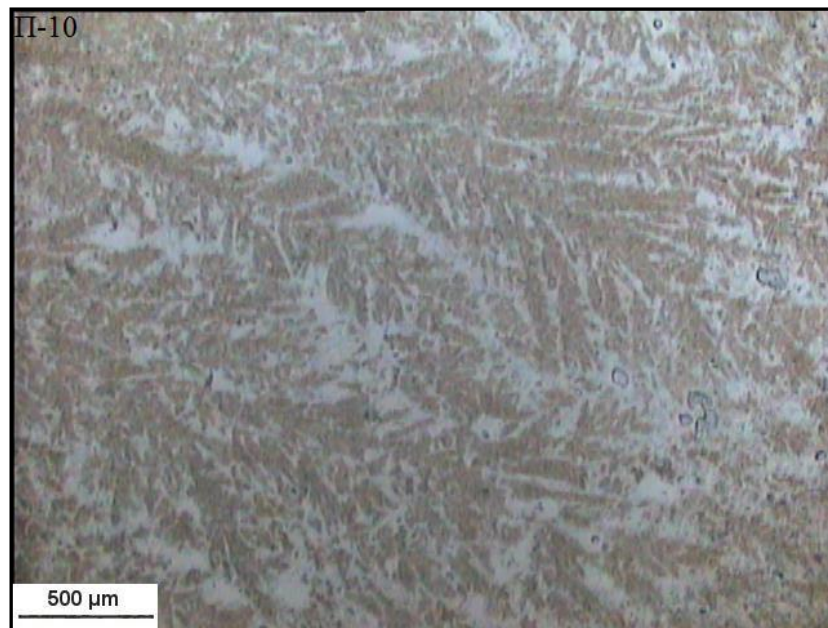
Description: The mass of Pitsa Travertine has a characteristic cellular structure that includes voids in the form of large pores. Pitsa Travertine is suitable for interior and exterior uses.



Restoration of The **Theatre of Dionysus** (or Theatre of Dionysos): It is an ancient Greek theatre in Athens. It is built on the south slope of the Akropolis hill, originally part of the sanctuary of Dionysos Eleuthereus (Dionysus the Liberator). The first works for the restoration of the Theatre started in the late 1970s.

(Sources: wikipedia
and elculture.gr)

Petrography



Description: Photomicrograph of thin section, showing many plant imprints, seaweed fossils and sparitic calcite. All fossils have been replaced by calcite. Clay minerals are found in stylolites.

Source of information: Hellenic Survey of Geology and Mineral Exploration

Mineral composition

If no accurate number, use MM=main minerals, SM = Subordinate minerals, AM=accessory minerals

Calcite (%)	Clay minerals (%)					
100	AM					

Source of information: Hellenic Survey of Geology and Mineral Exploration

Physical properties

Apparent density (EN 1936) kg/m ³	Open porosity (EN 1936) % vol	Water absorption at atmospheric pressure (EN 13755) % wt	Uniaxial Compressive strength (EN 1926) MPa	Flexural strength under concentrated load (EN 12372) MPa
2400	6,5	0,1	46	9,6

Real density (EN 1936) kg/m ³	Total porosity (EN 1936) % vol	Water absorption coefficient by capillary (EN 1925) (g/m ² x s ^{0,5})	Flexural strength under constant moment (EN 13161) MPa
-	-		

Frost resistance (EN 12371)				
Technological Test (Test A)				Identification Test (Test B): Number of cycles completed prior to stone failure
Flexural strength (EN 12372) after freeze-thaw cycling, MPa	Number of cycles	Uniaxial compressive strength (EN 1926) after freeze-thaw cycling, MPa	Number of cycles	
9,3	48			

Resistance to ageing by thermal shock (EN 14066)			
Change in dynamic modulus of elasticity (increase: +; decrease: -) %	Change in open porosity (increase: +; decrease: -) %	Change in ultrasound pulse velocity (increase: +; decrease: -) %	Change in flexural strength under conc. load (increase: +; decrease: -) %
-		-	

Abrasion resistance (EN 14157)			Resistance to salt crystallisation (EN 12370)	Breaking load at dowel hole (EN 13364)	
Method A - Wide Wheel Abrasion Test, mm	Method B - Böhme Abrasion Test, cm ³ / 50cm ²	Method C - Amsler Abrasion Test, mm	Change in mass (increase: +; decrease: -), %	Breaking load, N	Thickness of the test specimens, mm
-	23	-	-	1900	3

Slip resistance by means of the pendulum tester (EN 14231 / CEN/TS 16165)			Rupture energy (EN 14158), Joule	Thermal Conductivity (EN 1745), W/m·K
Tested surface finish	Slip Resistance Value — SRV			
	Dry test condition	Wet test condition		
			3	-

Source of information: Hellenic Survey of Geology and Mineral Exploration

Chemical properties

Main elements

SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	TiO ₂ (%)	MgO (%)	CaO (%)	Na ₂ O (%)	K ₂ O (%)	MnO (%)	P ₂ O ₅ (%)	SO ₃ (%)	LOI (%)
<0,05	<0,05	0,05	<0,05	0,45	55,00	1,00	0,16	<0,05	-	-	43,25

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
8,0	675	117	7,0	288	15	21	32
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
815	<1,0	95	8,0	<1,0	2,0	<1,0	<1,0
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
10	<1,0	<1,0	2,0	4,0	3,0		
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
Tl (ppm)							

REE

La (ppm)	Ce (ppm)	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)
Dy (ppm)	Ho (ppm)	Er (ppm)	Tm (ppm)	Yb (ppm)	Lu (ppm)		

Methods applied and source of information: Hellenic Survey of Geology and Mineral Exploration

Sources of more information

Type of information	Name of provider	URL
This data sheet	Hellenic Survey of Geology and Mineral Exploration	https://www.eagme.gr/
Non-commercial directory	Wikipedia	https://en.wikipedia.org/wiki/Theatre_of_Dionysus
Commercial directory		
Scientific publication		
Other publication	Hellenic Republic Ministry of Culture and Sports	https://www.culture.gov.gr/el/service/SitePages/view.aspx?iID=1330#prettyPhoto
	ελculture.gr	https://www.elculture.gr/blog/article/theatro-tou-dionysou-mia-mera-ston-simantikotero-gnosto-ypethrio-theatriko-choro-stin-archea-athina/

Compiled by:	Hellenic Survey of Geology and Mineral Exploration (H.S.G.M.E.) https://www.eagme.gr/	
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