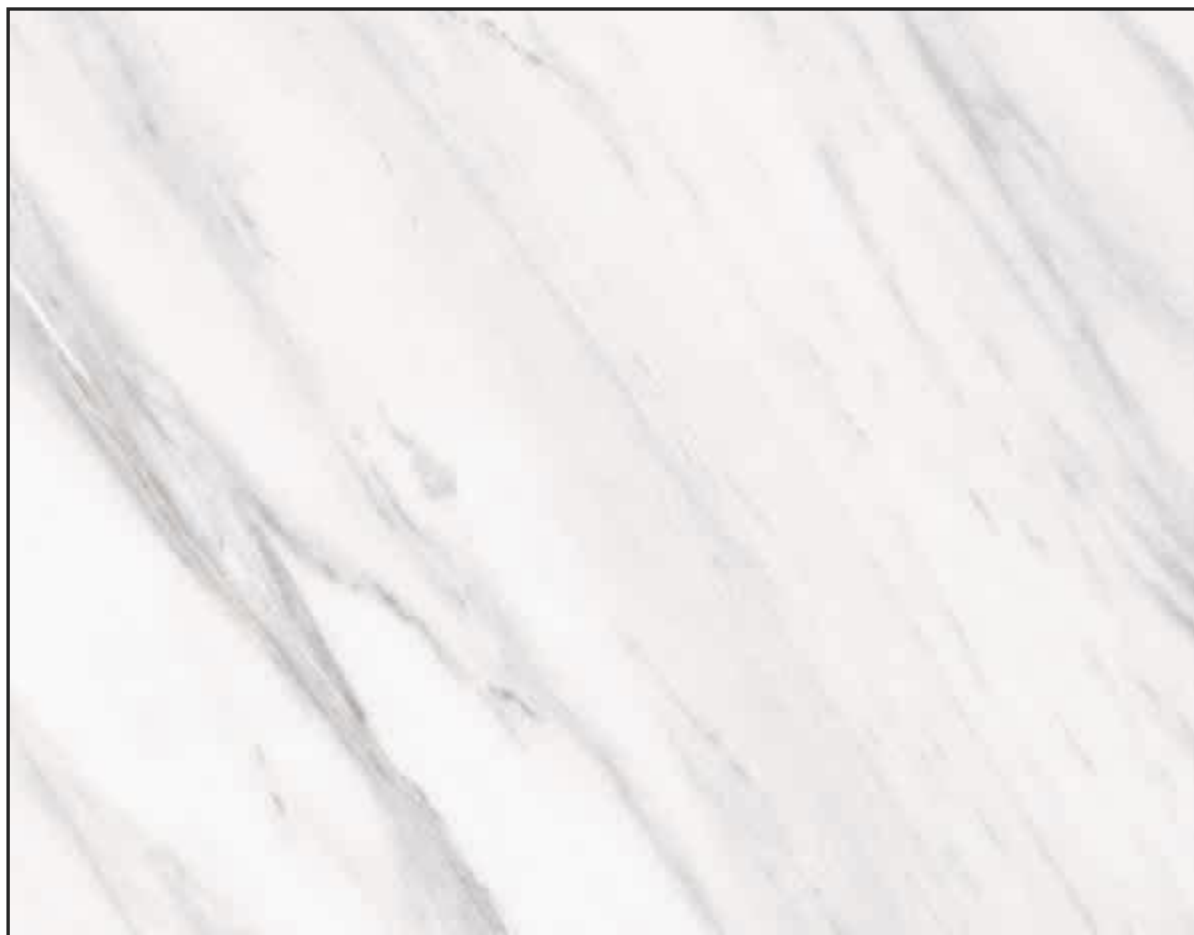


Volakas Drama White

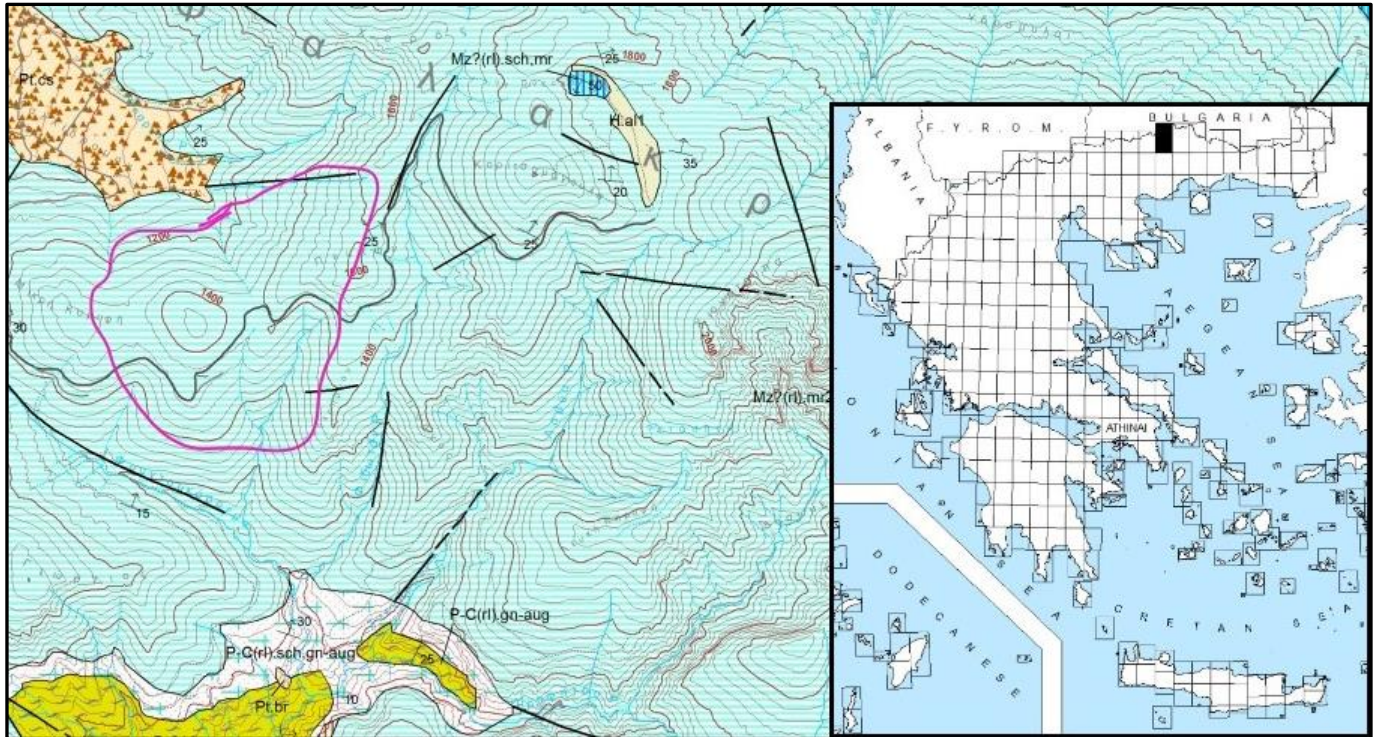


Scale 1:1

Short description: Fine-grained white dolomitic marble with grey veins.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Marble	Dolomitic marble	White	Greece	East Macedonia and Thrace	Drama	Volakas

Geological setting



Geology: Volakas Drama White (pink curve) belongs to the carbonate and dolomitic marbles of Rhodope Mass area, which is part of the region of East Macedonia and Thrace.

(Source: Geological Map of Greece 1:50000, Potamoi Sheet)

Production: The most important quarry area is near the Volakas village, which is built in a cavity, formed between the mountain masses of Falakro.

Geological age: Mesozoic

Geological unit: Lower Unit - Carbonate and dolomitic marbles

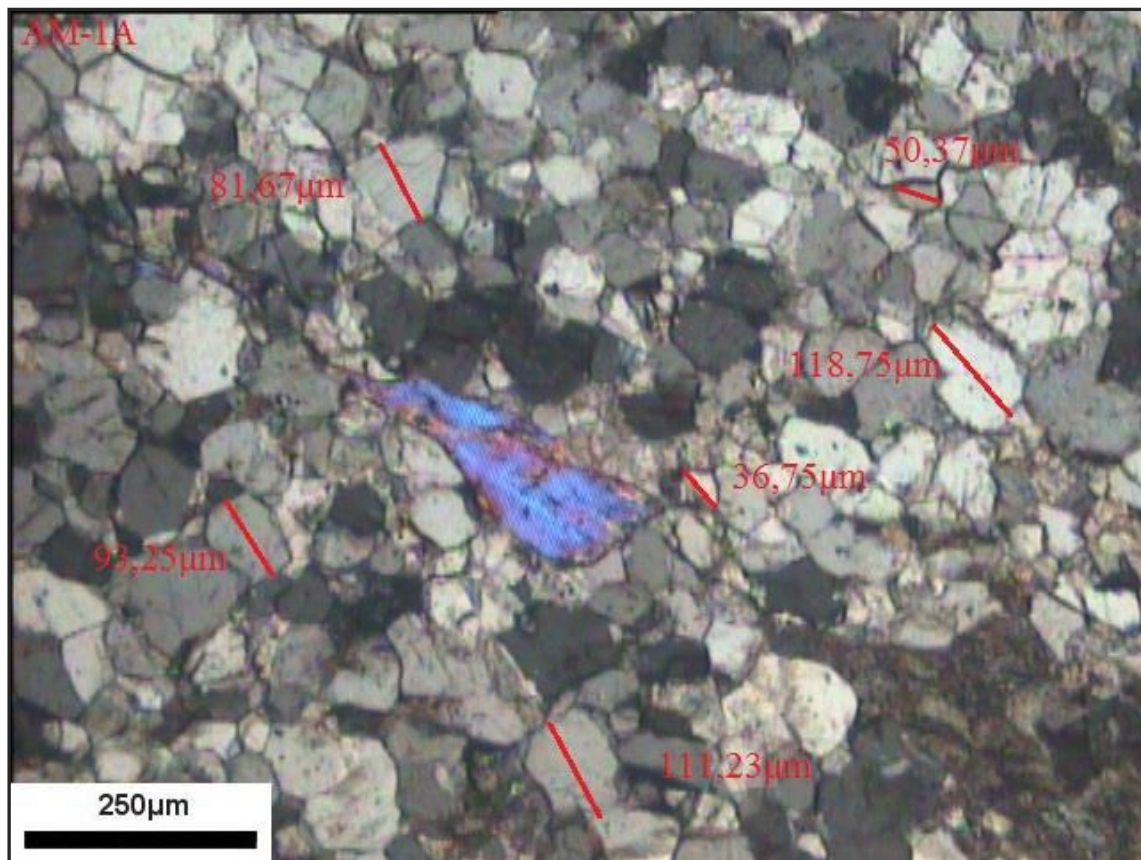
Application, use and heritage

Description: VOLAKAS marble is quarried in the Mountainside of Falakro in Drama, Greece. Volakas Marble is known as the “Carrara of Greece”, due to its all-white background with grey or brown veins. The marble blocks are quarried open-pit and underground, through tunnel excavation. The most common use is on wall and floor coverings, fireplaces, kitchens, public areas and for many renovation applications.



Syntagma – Metro Station: Cladding with Volakas marble.

Petrography



Description: Photomicrograph of thin section, showing calcite and dolomite crystals and presence of muscovite.

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

Dolomite (%)	Calcite (%)	Muscovite (%)	Plagioclase (%)	Ilmenite (%)	Apatite (%)	
98	2	AM	AM	AM	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
2810	0,6	0,2	178	5,5

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	
5,3	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
-	22	-	-	950	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		
			6	-

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 (%)
<0,10	<0,10	<0,10	<0,10	19,45	31,20	1,29	0,11	<0,05	-	-	46,13

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
2,0	25	5,0	1,3	7,0	2,5	18	0,9
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
35	0,8	7,0	4,0	1,0	0,3	<0,1	0,1
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
3,4	0,7	0,2	0,2	0,7	0,4		
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
Tl (ppm)							

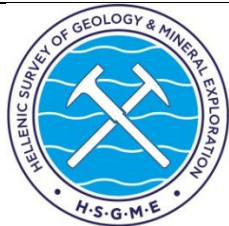
REE

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	www.eagme.gr
Non-commercial directory		
Commercial directory		
Scientific publication		
Other publication		

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