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Klimara Agias Annas

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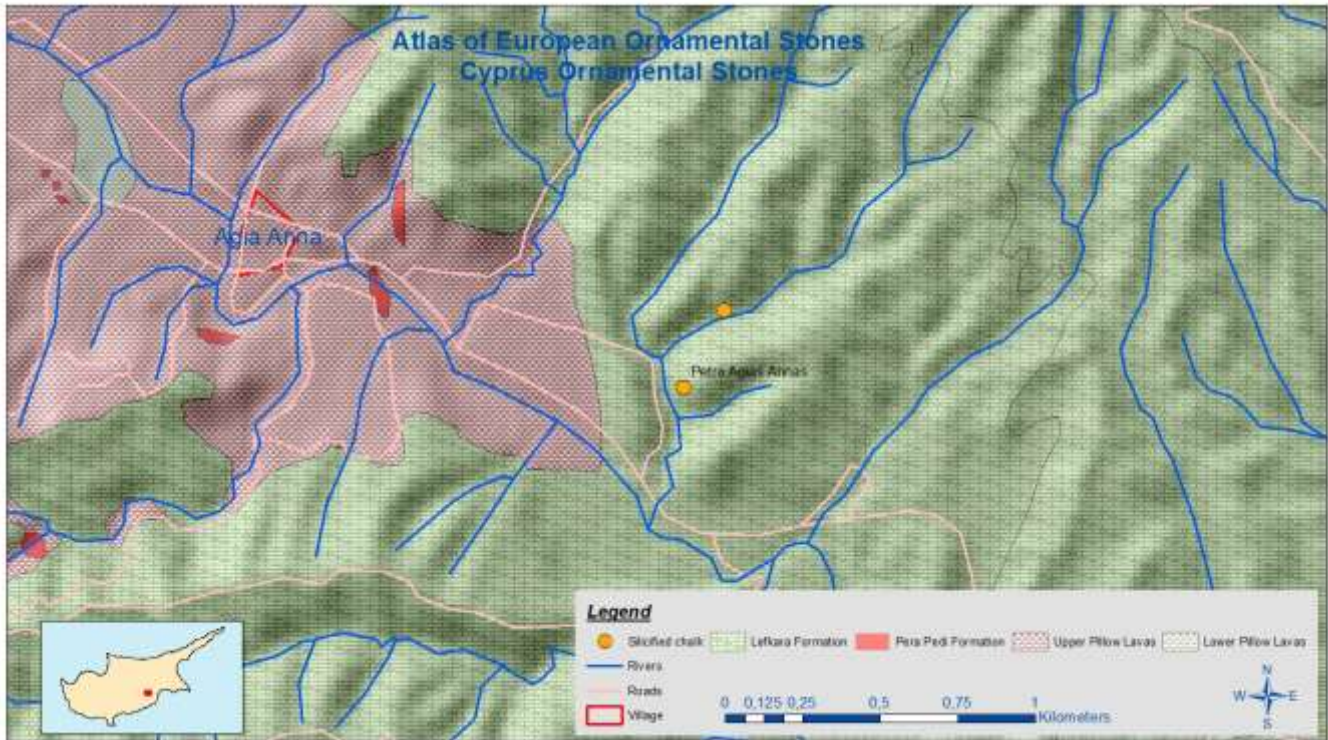


Scale: 2.3 cm

Short description: Silicified chalk

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Miscellaneous dimension stones	Chert (Silicified chalk)	Light- grey to dark grey	Cyprus	Larnaka	Agia Anna	Agia Anna

Geological setting



Geology: The Lefkara Formation consists of pelagic marls and white chinks with the presence or absence of chert. These are the oldest sedimentary rocks deposited on the three geotectonic zones of Cyprus.

Production: In 2018, 1200 tons were produced. The quarries area is near Agia Anna village, located west of Larnaca.

Geological age: Upper Maastrichtian (67 million years) until the end of the Oligocene (22 million years).

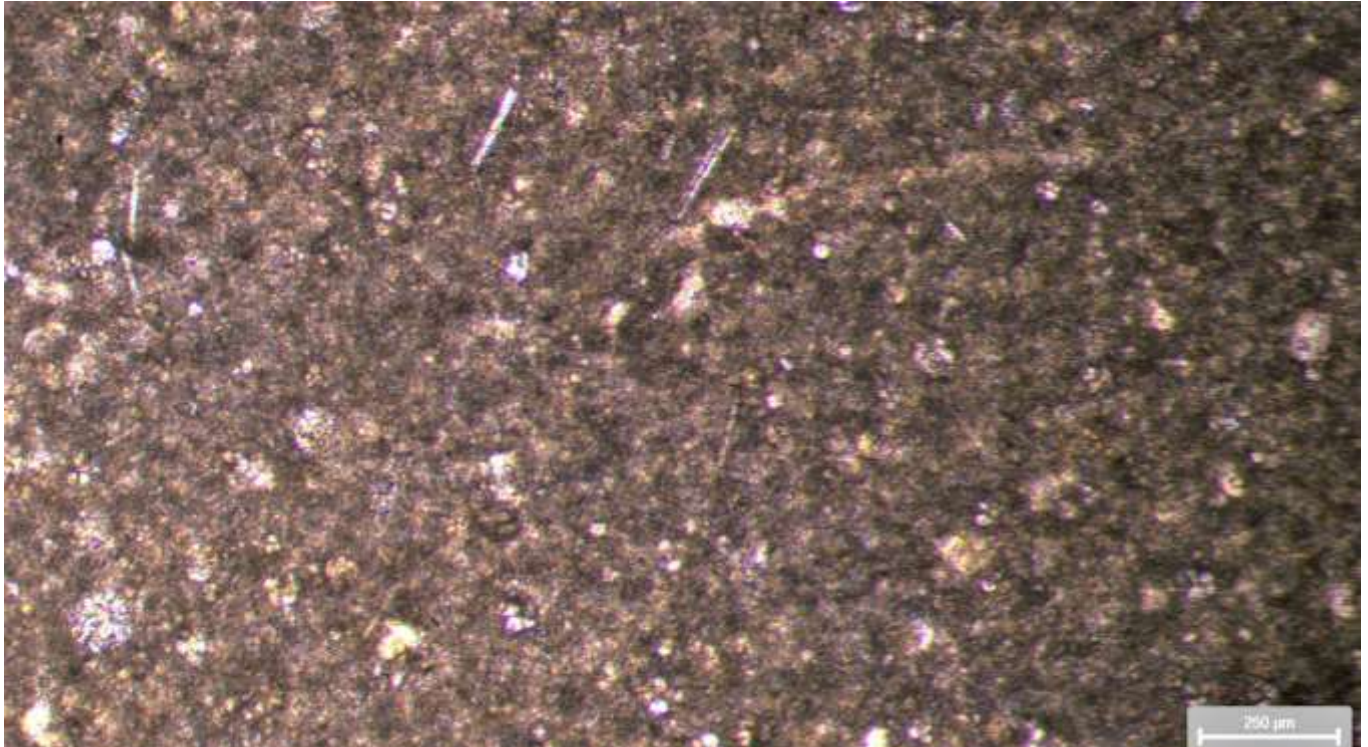
Geological unit: Lefkara Formation

Application, use and heritage



Description: House cladded with silicified chalks

Petrography



Description: Microphotograph of silicified chinks, showing organogenic sediments including fragments of microfossils and sparry calcite and quartz.

Source of information: Cyprus Geological Survey Department

Mineral composition

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

Calsite (%)	Quartz (%)	Cristobalite (%)	Montmorillonite (%)	Palygorskite (%)		
39,8	25,8	24,4	5	5		

Source of information: Chemical Laboratory of Cyprus Geological Survey Department.

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
2,45	12,41	7,01	74	

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
2,57	18,047		

Frost resistance (EN 12371) R				
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	

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, mm ³	Method C - Amsler Abrasion Test, mm	Change in mass (increase: +; decrease: -), %	Breaking load, N	Thickness of the test specimens, mm

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		
	-	-		

Source of information: Engineering geology and industrial mineral laboratory of Cyprus Geological Survey Department.

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 (%)
84,7	< 0,35	<0,41	<538,5	nd	18,36	0,78	0,78	0,09	nd		

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
10	12,7	104	3,2	49400	529100	199200	1,7
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
543	0,17	681	1,7	0,2	2,6	0,04	0,4
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
1	3,9	0,3	0,12	0,03	0,05	1,9	0,07
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
0,016	2	0,01	0,05	0,89	0,05	0,9	0,22
Tl (ppm)							
0,05							

REE

La (ppm)	Ce (ppm)	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)
3	4,19	0,6	2,36	0,7	0,05	0,7	0,05
Dy (ppm)	Ho (ppm)	Er (ppm)	Tm (ppm)	Yb (ppm)	Lu (ppm)		
0,55	0,1	0,4	0,05	0,4	0,05		

Methods applied and source of information: ICP, Geochemical – Chemical Laboratory of Cyprus Geological Survey

Sources of more information

Type of information	Name of provider	URL
This data sheet	Cyprus Geological Survey Department	http://www.moa.gov.cy/moa/gsd
Non-commercial directory		
Commercial directory		
Scientific publication		
Other publication		

Compiled by:	Cyprus Geological Survey Department http://www.moa.gov.cy/moa/gsd	
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