

Petra Troodous

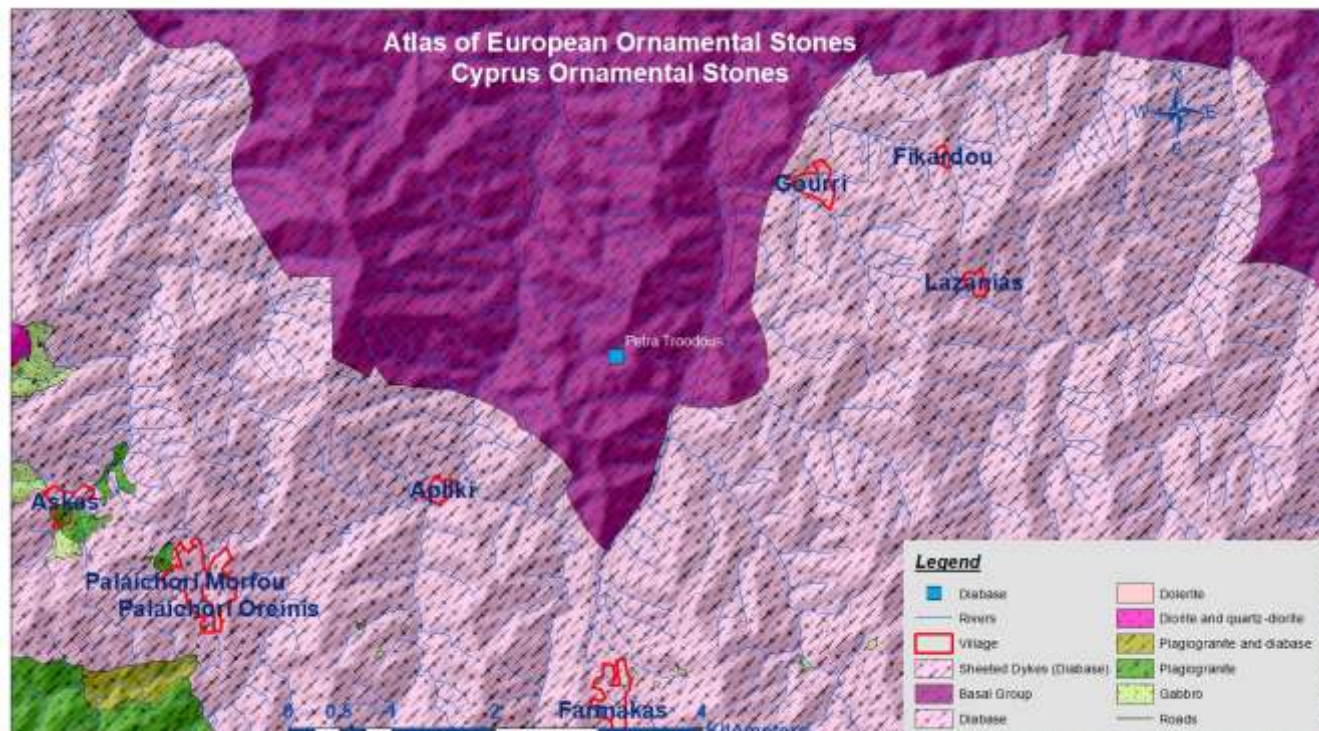


Scale: 1.84: 1

Short description: Sheeted dykes (diabase), basalt mainly of doleritic composition

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Basalt	diabase	Grey to dark grey	Cyprus	Lefkosia	Farmakas	Farmakas

Geological setting



Geology: Sheeted dykes (diabase), mainly of doleritic composition

The **sheeted dyke complex (diabase)** was formed 92 Ma by the solidification of the magma in the channels, through which it intruded from the magma chambers at the bottom of the oceanic crust, feeding at the same time the submarine extrusion of lava on the seafloor. This continuous process resulted in the creation of a series of parallel dykes made up of up to 100% dykes, which in-fill the empty space created by the divergence of the tectonic plates. The sheeted dyke complex outcrops nearly everywhere across the Troodos Mountain range, forming an elliptical ring, which surrounds the plutonic rocks of Mount Olympus and is surrounded by the extrusive rocks. The intrusive rocks are fine- to medium- crystalline, have a basaltic to doleritic composition with northwest to southeast direction, and are almost vertical, apart from regions affected by later tectonism phases.

Production: In 2020, 308 tons were produced, quarried from a quarry located north of Farmakas village.

Geological age: 92 Ma

Geological unit: Sheeted dykes (diabase)

Application, use and heritage



Description: House clad with diabase and other igneous rocks.



Description: Paving with Petra Troodous (diabase) - Holy Monastery of Panagia Sfalantziotissas located north of Limassol.



Description: Construction of wall with diabase and other igneous pebbles and cobbles.

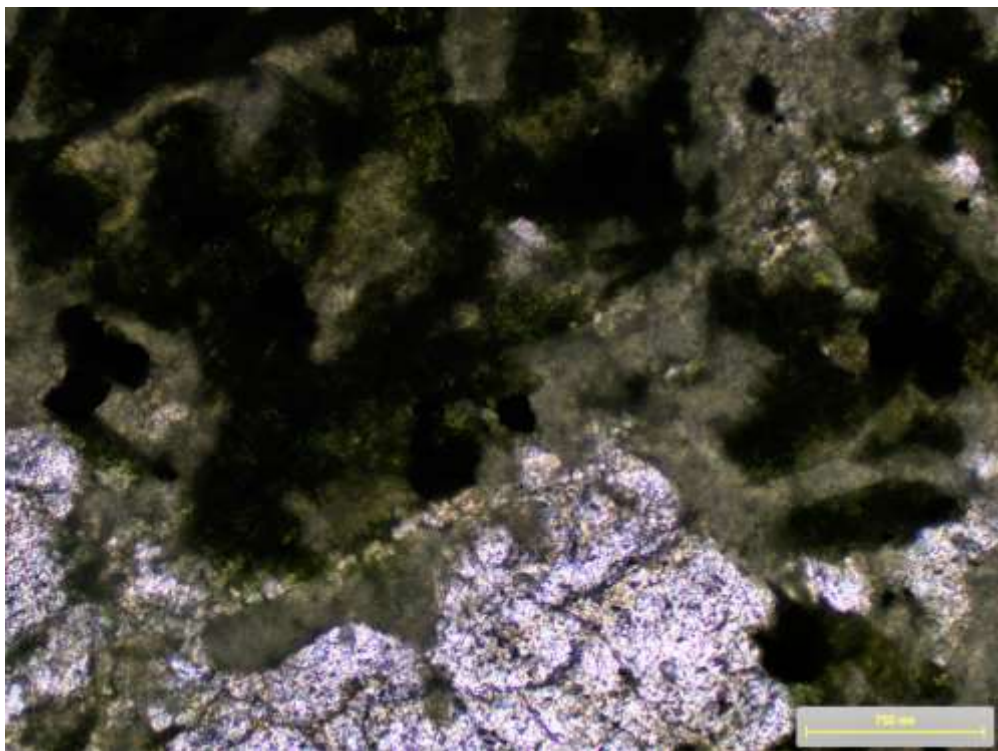
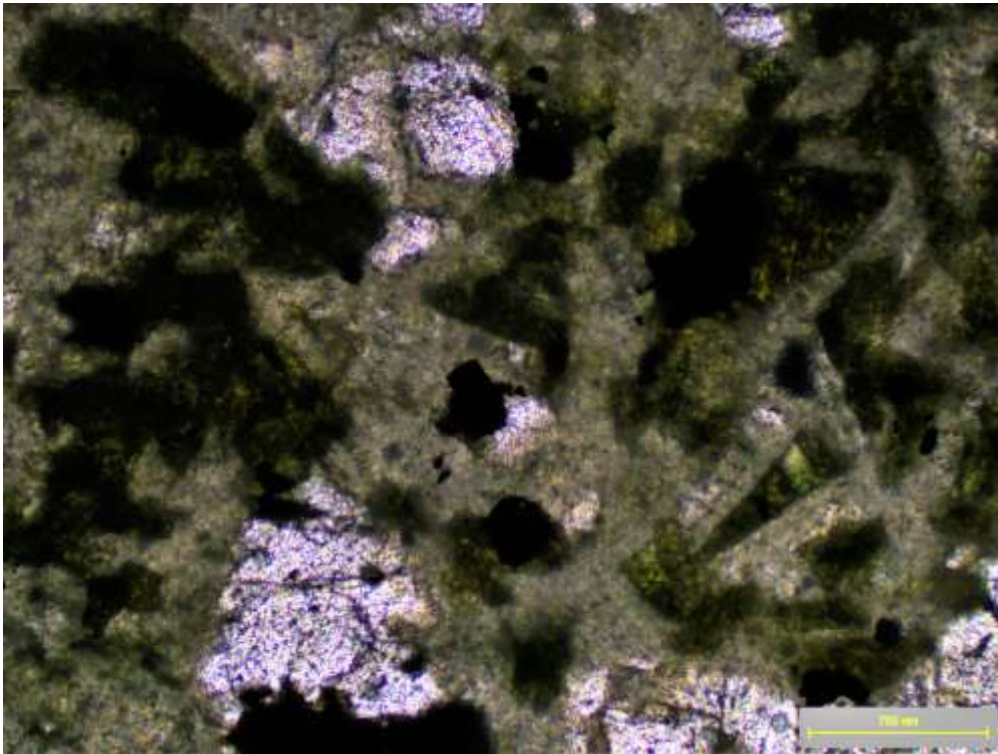


Description: Description: House clad with diabase and other igneous rocks.



Description: Paving in Protaras with a combination of Petra Troodous (diabase) and Mitsero reef limestone.

Petrography



Description: Microphotograph of Diabase, consisted with plagioclase, Clino -pyroxenes, amphiboles, chlorite, and Quartz. As accessory minerals contain epidote and magnetite.

Source of information: Cyprus Geological Survey Department

Mineral composition

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

Quartz (%)	Clino - pyroxenes (%)	Epidote (%)	Anorthite (%)	Albite (%)	Chlorite (%)	Actinolite (%)
8	6	2	15	35	26	7
Magnetite (%)						
1						

Source of information: The research project "Characterization of structural and decorative stones used in Cyprus", which was approved and funded by the Research Promotion Foundation. The contractor was a Mosaic and Marble Industry Association with partners for the research work of the Department of Geological Survey, the University of Cyprus (Department of Civil and Environmental Engineering) and the Institute of Geological and Mining Research of Greece.

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
2622	3,4	-	167	23,3

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
2890	9,3	1,611	

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
	n/a				

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		
	n/a	n/a		

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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 (%)
55	11	14	2	7	5	5				-	

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
260	18,6	1230	27,3	10	120	25	1
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
300	0,04	10,6	1,6	0,3	1,3	0,05	0,1
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
22	15,5	0,7	0,05	0,03	0,05	13,7	0,47
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
3	0,5	0,19	0,5	10,5	0,1	0,5	0,1
Tl (ppm)							
0,01							

REE

La (ppm)	Ce (ppm)	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)
2,8	7,37	0,9	4,41	1,5	0,7	2,8	0,4
Dy (ppm)	Ho (ppm)	Er (ppm)	Tm (ppm)	Yb (ppm)	Lu (ppm)		
2,93	0,6	1,8	0,3	1,5	0,2		

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	http://www.moa.gov.cy/moa/gsd/
Non-commercial directory		
Commercial directory		
Scientific publication		
Other publication		

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