

Gris Mondariz

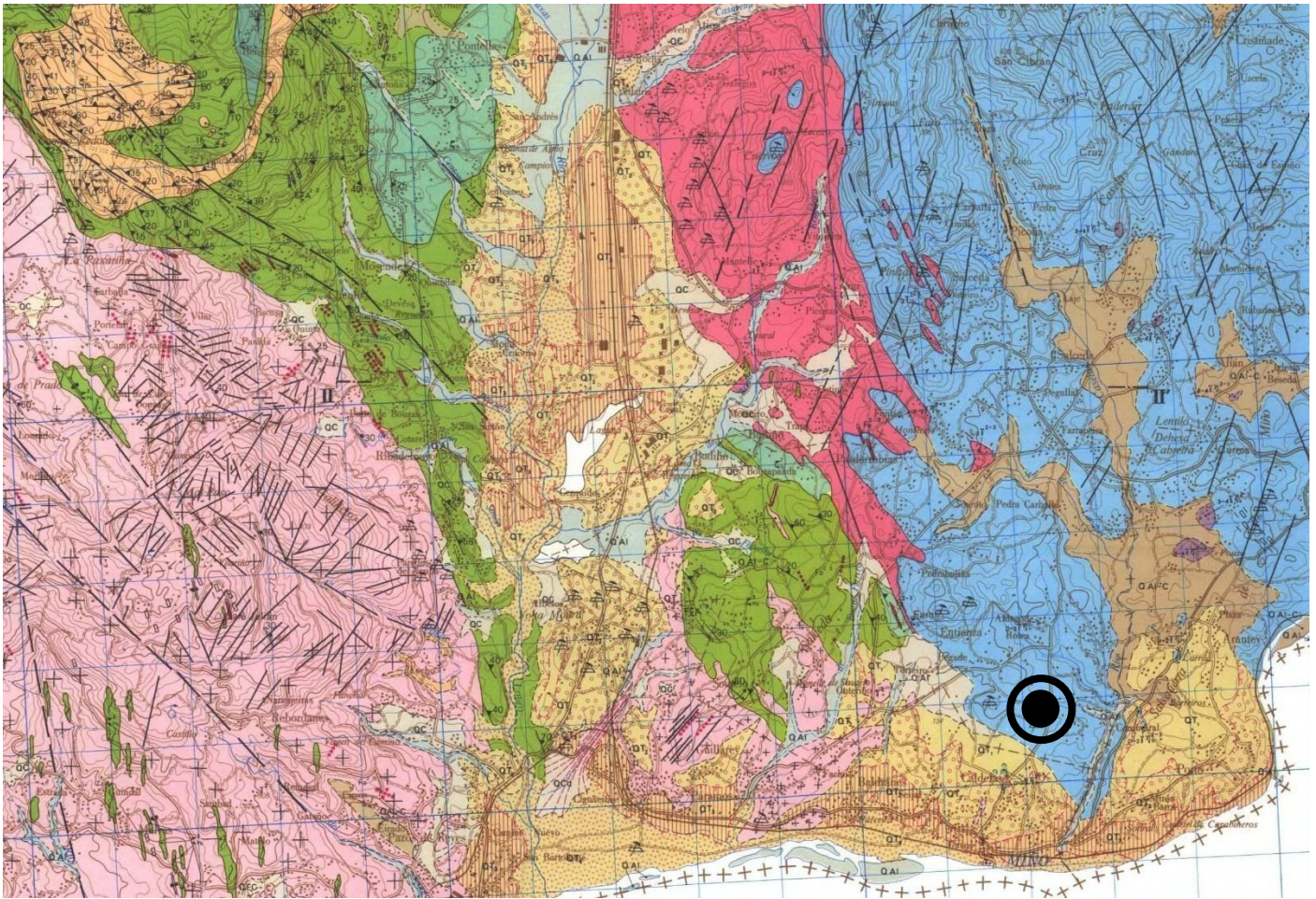
Mondariz



Short description: Biotitic amphibolic porphyritic granodiorite. Hypidiomorphic texture of coarse to very coarse grain size, with a porphyritic tendency due to the great development of some K-feldspars, which also have a beige tone.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
granite	sienogranite	grey	Spain	Pontevedra	O Porriño- Ponteareas- Salvaterra de Miño-Salceda de Caselas	O Porriño- Ponteareas- Salvaterra de Miño-Salceda de Caselas

Geological setting



Geology: The "O Porriño" pluton as a whole belongs to the group of late calcoalcaline granodiorites or postkinematic granitoids of epizonal location, within the scope of the variscan granitic plutonism of Galicia. Their petrological and geochemical characteristics are transitional between those of type I and S granites. The aesthetic and structural characteristics of the granites of the "O Porriño" massif are very favorable for their exploitation as ornamental rocks, since they are later than The main variscan deformations, the thermal peak of the regional metamorphism and the migmatization processes, generally present a great homogeneity and scarcity of enclaves and deformation structures.

Production: The exploitation is carried out in numerous quarries to the south of the O Porriño massif, being one of the best known granites in Spain.

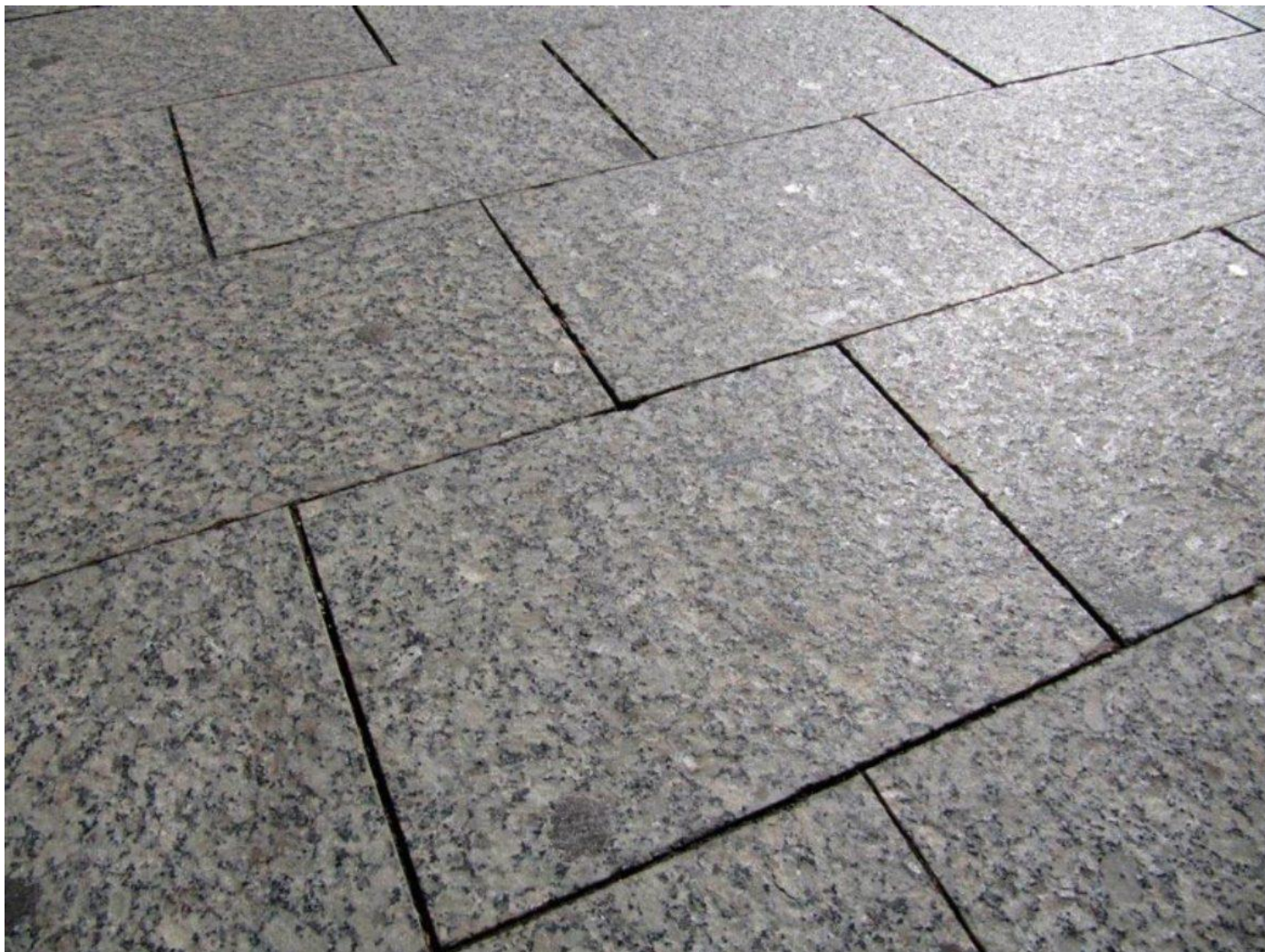
Geological age: Late Pennsylvanian- Cisuralian.

Geological unit: O Porriño massif.

Application, use and heritage



Description: Kitchen worktop.



Description: Flooring.

Petrography

Description: Texture: heterogranular, hypidiomorphic, porphyry. Main Minerals: microcline (55%), plagioclase (25%) and quartz (15%). Accessory Minerals: hornblende, biotite, sphene, opaque, zircon. Porphyry microcline with karlsbad and lattice twins and plagioclase inclusions, these are hypidiomorphic and oscillatory zoned. Quartz in the form of little deformed individual grains. Small enclaves or aggregates of biotite with amphibole. Good connection between the grains and lack of alterations.

Source of information: <http://www.igme.es/>

Mineral composition

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

Mineral 1 (%)	Mineral 2 (%)	Mineral 3 (%)	Mineral 4 (%)	Mineral 5 (%)	Mineral 6 (%)	Mineral 7 (%)
Mica (55%)	Phlogopite (25%)	Quartz (15%)	Acessory minerals (5%)			
Mineral 8 (%)	Mineral n (%)					

Source of information: <http://www.igme.es/>

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
2640		0.22	110	13

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	

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
				2010	

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: <http://www.granitodegalicia.com/>

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 (%)
69.4	15.29	0		0.99	2.95	3.27	3.25	0.03			

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
33	24		7	11	10	36	5
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
390	2	810	63	4	160	1	
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
	14			6	22	205	11
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
0.5	20	1	2.5				
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:

<http://info.igme.es/cartografiadigital/sidimagenes/magna/20805/Estudio%20geoqu%C3%ADmico%20rocas%20igneas/Estudio%20geoqu%C3%ADmico%20rocas%20igneas.pdf>

Sources of more information

Type of information	Name of provider	URL
This data sheet	Instituto Geológico y Minero de España (IGME).	http://www.igme.es/
Non-commercial directory	Granito de Galicia.	http://www.granitodegalicia.com/
Commercial directory		
Scientific publication		
Other publication		

Compiled by:	Instituto Geológico y Minero de España (IGME) http://www.igme.es/	 Instituto Geológico y Minero de España
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