

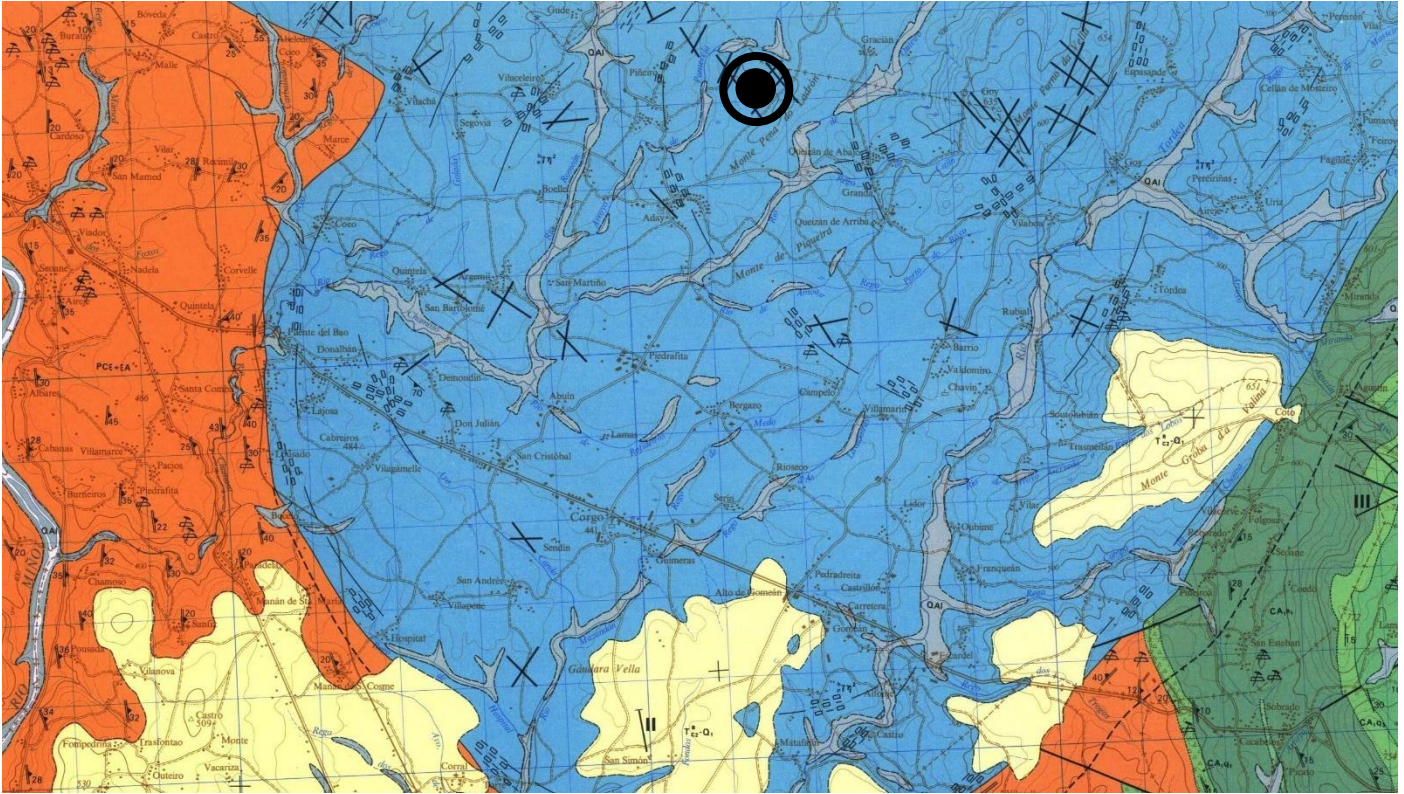
Marrón Estrella



Short description: Biotitic granite with a honeycomb texture of medium to coarse grain size and brown K-feldspars.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
granite	granite	grey	Spain	Lugo	Lugo	Lugo

Geological setting



Geology: Massif that intrudes with very clear contact in Precambrian materials of the Vilalba Series and in the Paleozoics of the Candana Group. They are made up of coarse grained porphyritic biotitic granodiorites. The massif presents a magmatic flow orientation parallel to the intrusion edges.

Two facies have been differentiated within this massif depending on the presence or absence of microcline megacrysts:

- Central facies, defined by the presence of quartz porfidoblasts and K-feldspar.
- External facies, which surrounds the previous one forming a ring of up to 1 km. wide, characterized by its coarse grain without megacrysts and an allotriomorphic texture.

This massif is affected by a subvertical fracturing that favors the alteration and morphology in boluses and presents enclaves of the schists in which they intrude, especially in the border facies. The intrusion of the granite bodies causes an aura of contact metamorphism that is superimposed on the regional metamorphism that appears in the area.

Production: The production comes from a single quarry (Aday quarry).

Geological age: Pennsylvanian.

Geological unit: Castroverde massif.

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
2650	0.7	0.3	163	8.4

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
		0.568	

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	
9.8	56	163	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: -) %
18.78			

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
16.9				1957	

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		
	61	19		

Source of information: <https://www.ingemargroup.com/canteras/>

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		
Commercial directory	Ingemarga	https://www.ingemargroup.com/canteras/
Scientific publication		
Other publication		

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