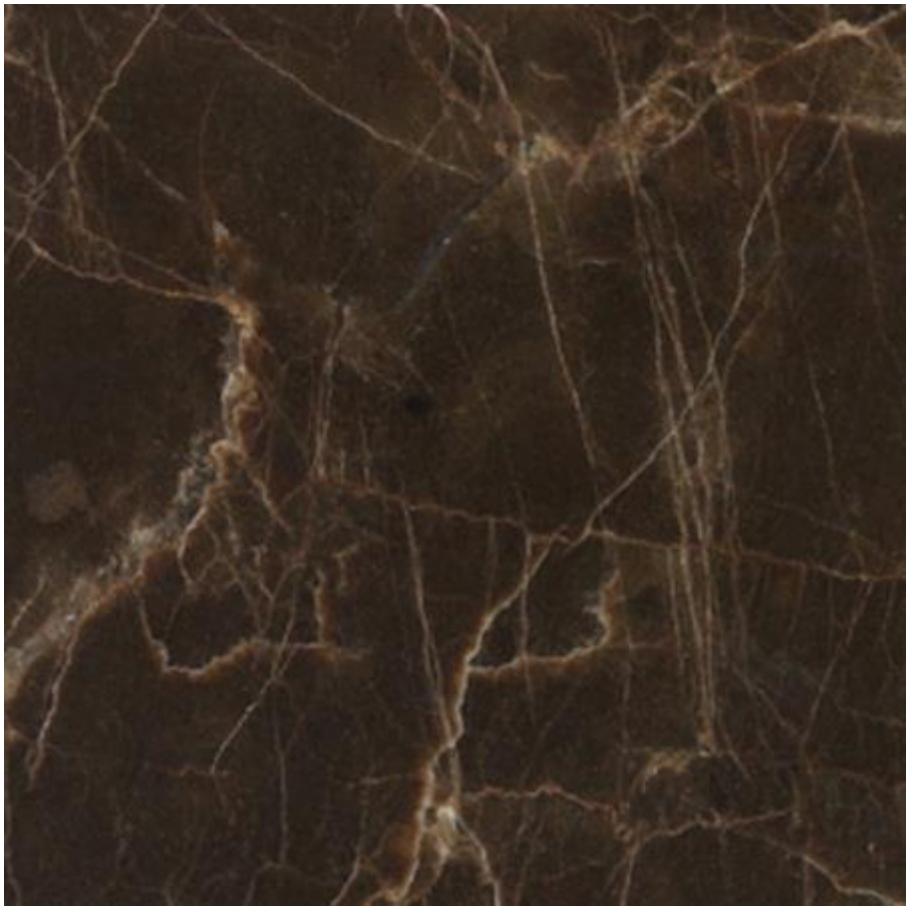
Emperador Oscuro

Emperador de Castril

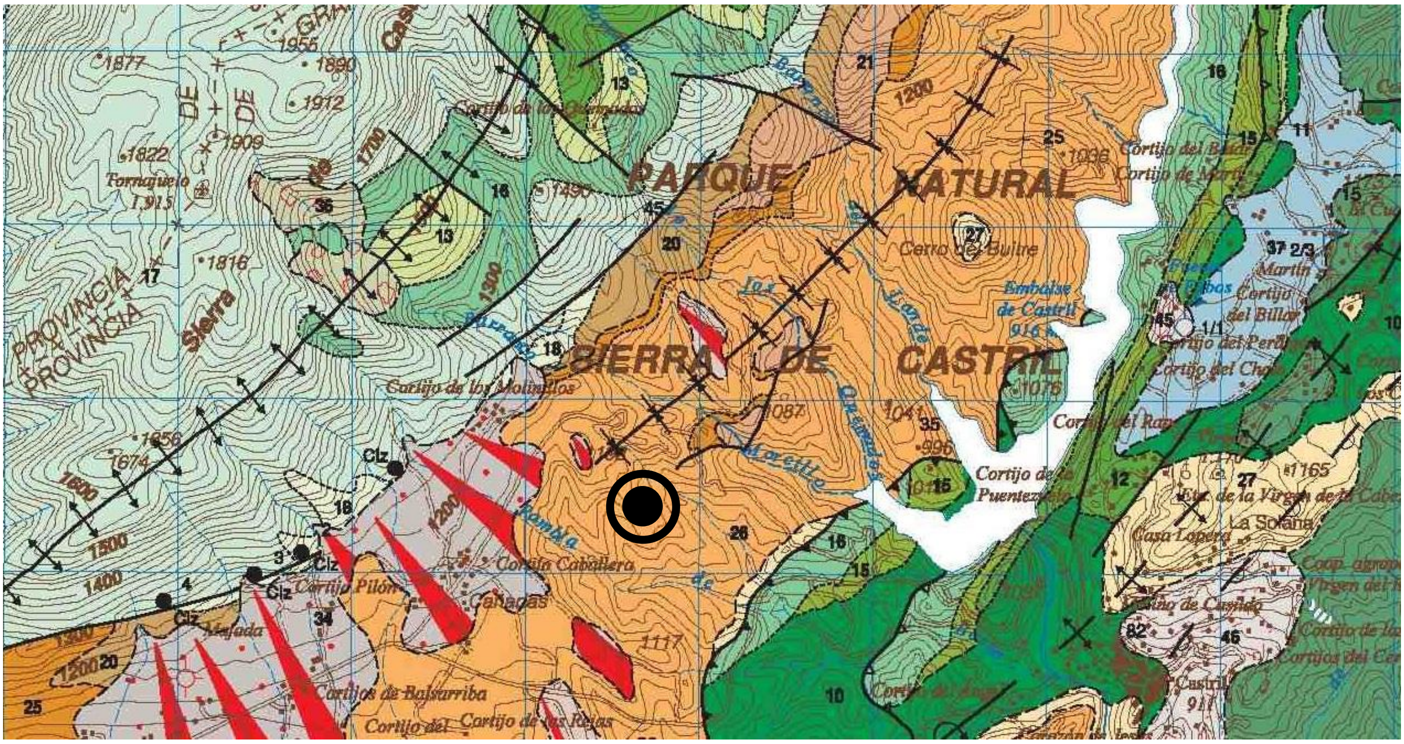


5 cm

Short description: Fine grained recrystallized dolomites with light gray, brown and amber colors, with some irregular breccia sections. Their main characteristics are the massive appearance and the absence of discontinuities or internal structures.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
limestone	dolomite	brown	Spain	Granada	Castril	Castril

Geological setting

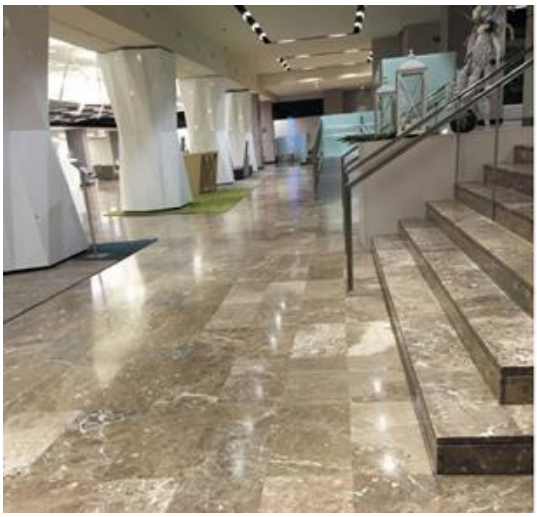


Geology: Fine grained recrystallized dolomites with light gray, brown and amber colors, with some irregular breccia sections. Their main characteristics are the massive appearance and the absence of discontinuities or internal structures. In some areas a large scale cross stratification can be identified, which suggests variations in the thickness of the section; in less recrystallized sections some parallel laminations can be observed.

Production: Production in two quarries located in the Sierra de Castril.

Geological age: Cenomaniense.
Geological unit: Jaen formation.

Application, use and heritage



Description: Floors (https://www.litosonline.com/es/article/el-marmol-marron-emperador)

Petrography

Description: Fine grained dolomite. Fine grained recrystallized dolomites with light gray, brown and amber colors, with some irregular breccia sections. Their main characteristics are the massive appearance and the absence of discontinuities or internal structures. In some areas a large scale cross stratification can be identified, which suggests variations in the thickness of the section; in less recrystallized sections some parallel laminations can be observed.

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 (%)
Dolomite (MM)						
Mineral 8 (%)	Mineral n (%)					

Source of information:

Physical properties

Apparent density (EN 1936) kg/m3	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
2680	**1,2**	**0,35**	**156,61**	**15,49**

Real density (EN 1936) kg/m3	Total porosity (EN 1936) % vol	Water absorption coefficient by capillary (EN 1925) (g/m2 x s0,5)	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	
13,04		**133,46**	**56**	

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
0,55					

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: hhttps://www.litosonline.com/es/article/el-marmol-marron-emperador
https://www.cortesmarbles.com/cmsupload/catalogo-ctecnicas/caracteristicas-tecnicas.pdf?ndl

Chemical properties

Main elements

SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	MgO (%)	CaO (%)	Na_2O (%)	K_2O (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)	LOI (%)
73,57	13,72	1,21		0,28	0,6	3,89	4,57	0,03			0,89

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
	48			2		29	
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
74		182			280		7
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
		12			9		
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:

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	Liotosonline	https://www.litosonline.com/es/article/el-marmol-marron-emperador
Scientific publication		
Other publication		

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