

Neuhauser

Neuhaus

Mühlviertel-Granit

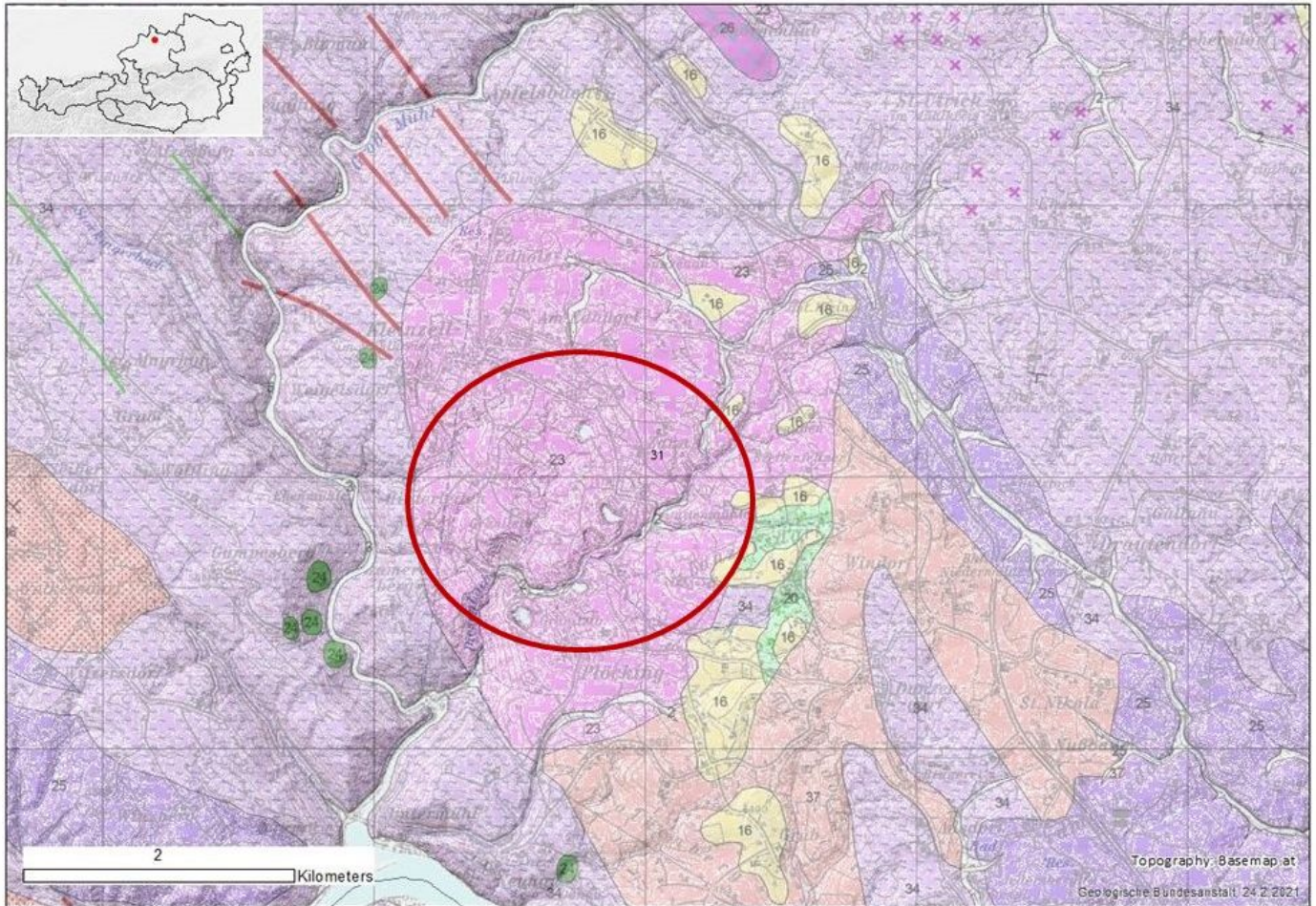


3 cm

Short description: light-coloured, homogeneous, fine- to medium-grained, plagioclase accentuated granite with white-grey to creamy-white feldspar, medium-grey to light brown-grey transparent quartz grains, finely distributed smaller biotite crystals and subordinate muscovite

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Commercial Granite	Granite	Light-grey	Austria	Rohrbach / Oberösterreich (Upper Austria)	St. Martin im Mühlkreis Kleinzell im Mühlkreis	Kleinzell im Mühlkreis Plöcking

Geological setting



Geology: The Neuhaus granite was formed at the end of the Variscan orogeny from melts from the earth's crust. It is exposed as a granite stock (pink signature on the map, number 31) measuring about 3x3.5 km in the area between Kleinzell and Plöcking in the Mühlviertel (Upper Austria). Actually, it is a fine-grained granite of the Mauthausen type, which has become known under the trade name Neuhauser Granit.

Production: The main quarrying area (red marking) is located between the villages of Kleinzell in the north and Plöcking in the south and is limited to an area of about 2x2.5 km, where the granite was extracted in numerous quarries. The fact that the granite in this area has a wide-spaced fissure system, which makes it possible to extract very large blocks, made the Neuhaus granite a popular building stone early on. The first written evidence of its use can be found as early as the 11th century.

Geological age: about 316 Ma

Geological unit: Neuhauser Granit, (tectonic unit): Südböhmischer Batholith / Southern Bohemian Batholith (URI: <http://resource.geolba.ac.at/tectonicunit/106>)

Application, use and heritage

Description: Neuhaus granite was used to build castles and churches in the immediate vicinity as early as the 11th century. From 1628 to 1757, the monastery of St. Florian near Linz was built with Neuhaus granite. The region experienced a heyday between 1800 and World War I - this period included the construction of Linz Cathedral, the Parliament in Vienna, the supply of paving stones for the cities of Vienna, Graz, Linz, Bratislava and Budapest as well as the construction of numerous Danube bridges as far as Serbia. Today, granite is still mainly used for paving stones, window, door and gate walls in local courtyards, columns and pillars, tables and benches, cross pillars, wayside shrines, chapels and funeral monuments.

Petrography

Description:

Source of information:

Mineral composition

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

Quartz (%)	Plagioclase (%)	Potassium Feldspar (%)	Biotite (%)	Muscovite	Chlorite	Apatite
20	35	37	7-10	SM	SM	AM
Zircon						
AM						

Source of information: Geological Survey of Austria (GBA)

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

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

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:

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 (%)

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
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	Geological Survey of Austria (GBA)	https://www.geologie.ac.at
Non-commercial directory		
Commercial directory		
Scientific publication		
Other publication		

Anthes, G., Heinrich, M., Lipiarski, P., Massimo, D., Kollars, B. & Rabeder, J. (2006): Grundlagenerhebung zu Vorkommen von Granitgesteinen in Österreich: Voruntersuchungen der nutzbaren Festgesteinsarten unter schwerpunktmäßiger Betrachtung der qualitativen Eigenschaften für den Verkehrsflächen- & Wasserbau als Basis für den Österreichischen Rohstoffplan.- Studie zu Projekt Ü-LG-050, 64 S., 2 Anl., 3 Blg., Stobl/Wien.

Strasser, W. & Stummer, J. (1998): Stainbruch Plekhing & In der Zell – Die Geschichte der Neuhauser Granitregion Plöcking – Kleinzell.- 352 S., Kulturverein Erlebniswelt Granit Neuhaus-Plöcking, Sankt Martin im Mühlkreis.

Picture of stone surfaces: Source: Kieslinger-Archive, Geological Survey of Austria, Wien

Geological map Moser, M. & Linner, M. (2020): GEOFAST Provisorische Geologische Karte der Republik Österreich 1:50.000 Blatt 31 Eferding.- 1 Bl., Geologische Bundesanstalt, Wien.

Topographic map: Basemap.at (<https://basemap.at>)

Compiled by:	Geological Survey of Austria (GBA) https://www.geologie.ac.at	 Geologische Bundesanstalt
---------------------	---	---