Stainzer Hartgneis

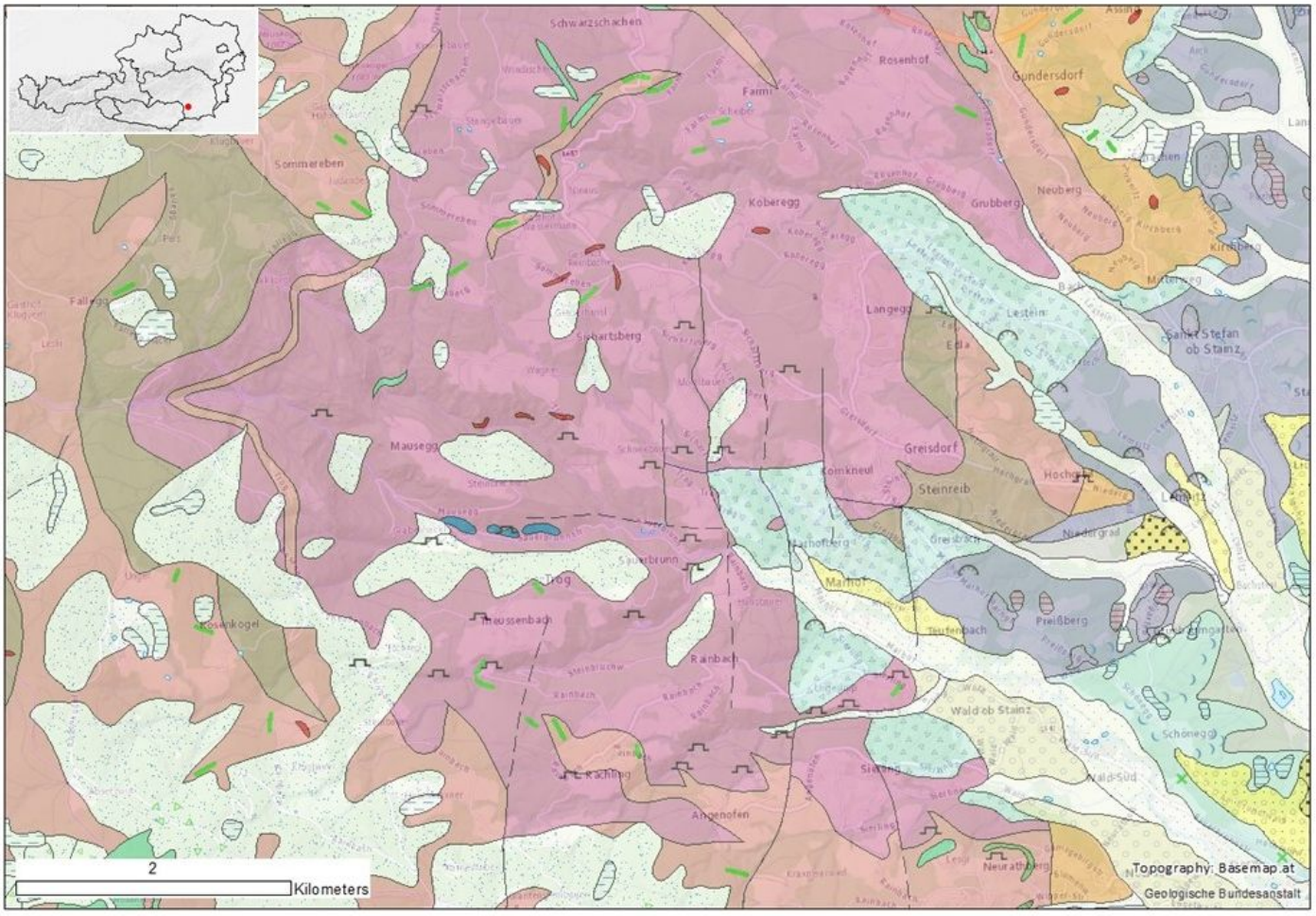
Stainz

Stainzer Platten

Short description: dark grey, fine-grained gneiss with tightly regulated light layers rich in feldspar and quartz, alternating in the mm range with dark layers rich in mica; partly rusty brown discolouration due to weathering of iron sulphides

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Commercial Granite	Gneiss	Grey	Austria	Deutschlandsberg / Steiermark (Styria)	Marhof	Theussenbach Rainbach

Geological setting



Geology: The Stainz gneiss (red signature on the map) occurs in the area northwest of the village of Stainz in western Styria. It is part of the blastomylonite gneisses of the higher parts of the Koralmkristallin, which are characterised by excellent schistosity and tight lineation.

Production: The main quarrying area is around the village of Stainz (quarry signs on the map). Due to the good fissility of the rock, large slabs can be obtained.

Geological age:
Geological unit: Stainzer Plattengneis

Application, use and heritage

Description: The material is preferably used for terrace slabs, steps, wall facing, street paving and gravestones. Especially recently, it has been increasingly used for garden architecture purposes. The example of the street paving in Graz, which was laid there more than 100 years ago, also shows the excellent weathering resistance and durability of slab gneiss. It still functions as the carrier-floor of small balconies in old tenement houses there.

Petrography

Description:

Source of information:

Mineral composition

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

Potassium feldspar	Plagioclase	Quartz	Biotite	Muscovite	Garnet	Epidote
MM	**MM**	**MM**	**MM**	**MM**	**SM**	**SM**
Disthene	Rutile	Tourmaline				
SM	**AM**	**AM**				

Source of information: Geological Survey of Austria (GBA)

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

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	

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_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	MgO (%)	CaO (%)	Na_2O (%)	K_2O (%)	MnO (%)	P_2O_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		

Putz, M., Stüwe, K., Jessell, M. W. & Calcagno, P. (2006): Three-dimensional model and late stage warping of the Plattengneis Shear Zone in the Eastern Alps.- Tectonophysics 412 (1-2), pp. 87-103, Amsterdam.

Geological map: Beck-Mannagetta, P., Eisenhut, M., Ertl, V. & Ohmann, O. (1991): Geologische Karte der Republik Österreich 1:50.000 Blatt 189 Deutschlandsberg.- 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