

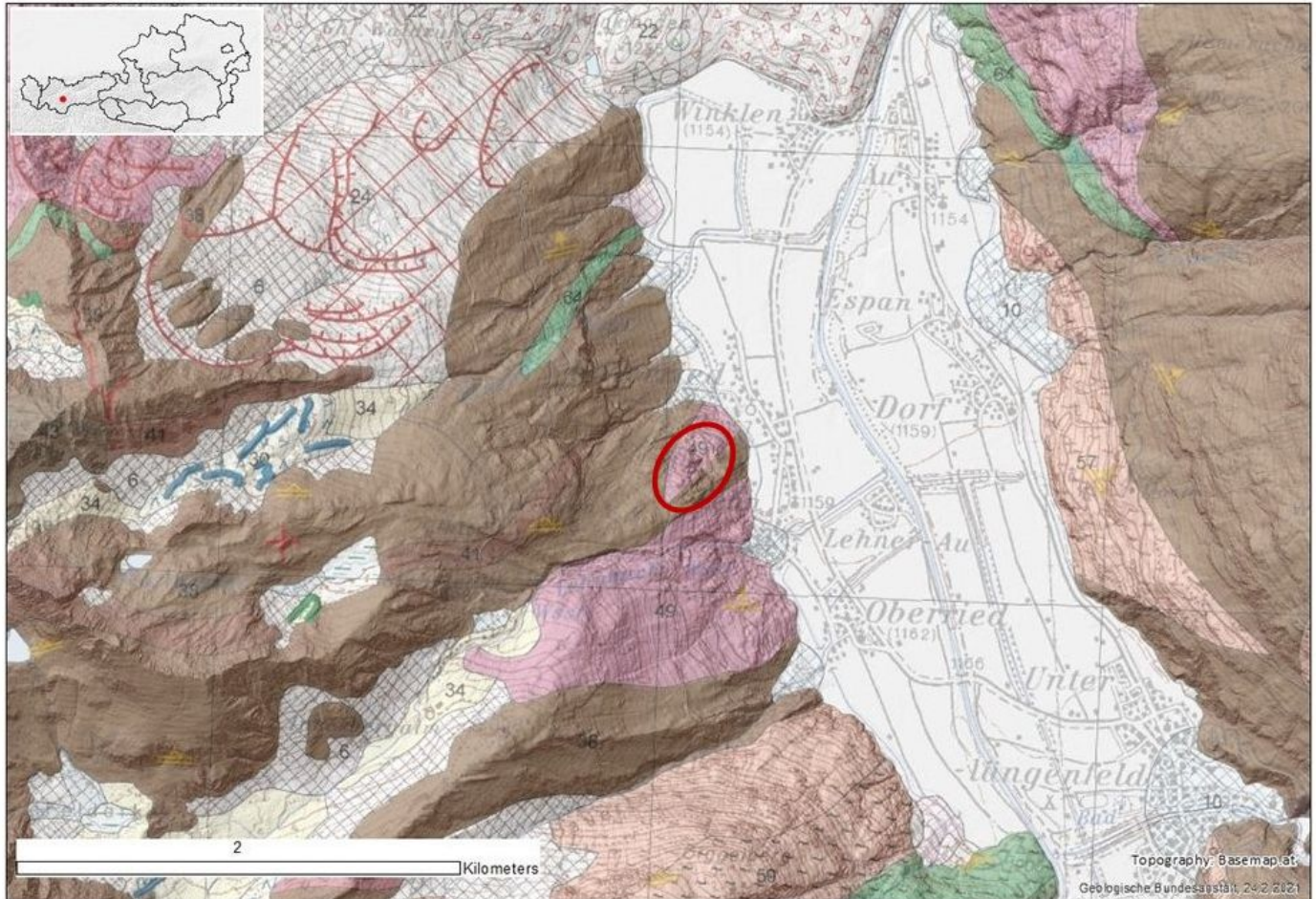


# Ötztal

**Short description:** massive, light grey Augen gneiss to flasergneiss

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	Imst / Tirol (Tyrol)	Längenfeld	Unterried

# Geological setting



**Geology:** The gneiss area (pink signature on the map) is located in the Ötztal valley in Tyrol. The orthogneisses belong to the Ötztal-Bundschuh Crystalline and show a multiphase metamorphic history. Characteristic is the presence of “Augen” (lensoid grains or grain aggregates) of feldspar on a macroscopic scale.

**Production:** The quarrying area is located north of the village of Oberried (red marking). This site is the only quarry producing ornamental stones in the region.

**Geological age:**

**Geological unit:**

# Application, use and heritage

**Description:** The material is mainly used for ashlar, slabs, kerbstones and steps.

# Petrography

**Description:**

**Source of information:**

# Mineral composition

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

Quartz	Feldspar	Biotite	Muscovite			
<b>MM</b>	<b>MM</b>	<b>SM</b>	<b>SM</b>			

**Source of information:** Geological Survey of Austria (GBA)

# Physical properties

Apparent density (EN 1936) kg/m <sup>3</sup>	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 <sup>3</sup>	Total porosity (EN 1936) % vol	Water absorption coefficient by capillary (EN 1925) (g/m <sup>2</sup> x s <sup>0,5</sup> )	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 <sup>3</sup> / 50cm <sup>2</sup>	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 <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	MgO (%)	CaO (%)	Na <sub>2</sub> O (%)	K <sub>2</sub> O (%)	MnO (%)	P <sub>2</sub> O <sub>5</sub> (%)	SO <sub>3</sub> (%)	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)	<a href="https://www.geologie.ac.at">https://www.geologie.ac.at</a>
Non-commercial directory		
Commercial directory		
Scientific publication		
Other publication		

Geological map: Kreuss, O. (2011): GEOFAST Provisorische Geologische Karte der Republik Österreich 1:50.000 Blatt 146 Ötz.- 1 Bl., Geologische Bundesanstalt, Wien.

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

<b>Compiled by:</b>	Geological Survey of Austria (GBA) <a href="https://www.geologie.ac.at">https://www.geologie.ac.at</a>	 Geologische Bundesanstalt
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