Peridotite

Characteristic summary:

Sample: TU28 Type of rock: Plutonic Age: Unknown Location/Formation: Finero, Italy



PPL image

Magnification: 45x



Olivine (yellow to purple), pyroxene (grey). Medium to coarse Subhedral to anhedral Phaneritic

Noteworthy features

Mineral morphology:

Main minerals:

Mineral Size:

Fabric:

Components: The sample is mainly composed of medium to coarse olivine crystals (O), locally with some pyroxene (P). Note that olivine crystals are not well-shaped with straight crystal faces, but tend to form and interlocked mosaic of crystals.

Processes reconstructed from the thin section: The peculiar composition of this rock, dominated by olivine, is typical of a restricted group of rocks, the peridotites. The abundance in olivine and the absence of typical components of other plutonic rocks, such as quartz and feldspar, indicates that this sample is the residue of the production of basaltic magma. From laboratory experiments and the study of rocks in deeply eroded mountain ranges, it is known that peridotite originates from the upper earth's mantle and when a peridotite partially melts up, it forms a magma with basaltic composition. Not all particles, however, melt when magma is formed, because that would require higher temperatures and these minerals form a solid, insoluble residue. In consequence peridotites can be found when material of the earths mantle is brought to the surface. This can either happen when continents collide and mantle material is uplifted, or alternatively, when a magma transports solid particles to the surface, e.g. during a volcanic eruption.

Occurrence: Olivinknollen in Basalt, Efel, Germany; Italz< Kimberlite volcanoes (also diamond host rocks, e.g. in South Africa), Oman, Alps.

Technical use: Ornamental stone, gemstone, occurs together with diamonds in kimberlite.



XPL image

Magnification: 45x