

Ignimbrite

Characteristic summary:

<i>Main components:</i>	<i>Pumice fragments, lithoclasts, feldspar crystals in a glass-shard matrix.</i>
<i>Grain size (Max):</i>	<i>Gravel, poor sorting</i>
<i>Grain morphology:</i>	<i>Subangular to subrounded</i>
<i>Fabric:</i>	<i>Pyroclastic</i>

Noteworthy features

Components: The sample is composed of large, highly porous pumice fragments (P), weathered lithic fragments (rock fragments eroded from pre-existing rocks, L) and feldspar crystals (F) embedded in a reddish glass-shard matrix. The detailed view (Image B) shows that the glass shards (G) are layered, welded and bent around larger grains (yellow arrow).

Processes reconstructed from the thin section: The composition and structure shown by the sample gives some insight on the formation of pyroclastic rocks. A strong eruption caused the formation of pumice, which is gas rich volcanic ash ranging from dust size to several centimeter of diameter. The larger pieces of pumice (P) are embedded in fine ash and mixed with feldspar (F) and lithic fragments (L). Key differences of this pyroclastic rock compared to the tuff (Sample TU20) are the alignment of particles, the presence of pumice and the strong deformation of ductile grains. These features develop because ignimbrites are deposited by pyroclastic flows, a hot suspension of particles and gases flowing rapidly from a volcano, after extremely intense eruptions. After the deposition, high temperature (above 600 °C) allowed the ductile deformation of the ash by compaction and flow and the successive cementation of the components. The reddish color of the glass-shard matrix is also an indication of the high temperature, because red pyroclastics only develop if the oxidation of the iron dispersed in the matrix is involved. After the deposition of the ignimbrite, the escape of aggressive volcanic gas trapped in the deposit can enhance the weathering of the components (e.g. Lithic fragments in Image A).

Occurrence: Vesuvio/Pompeii (Italy), Krakatau (Indonesia), Santorini (Greece), Laacher See, Eifel (Germany).

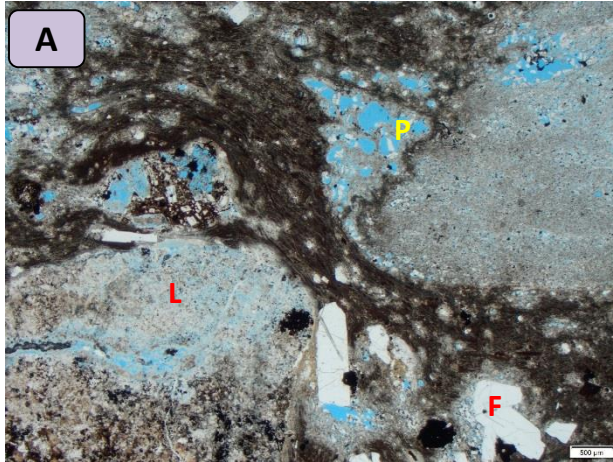
Technical use: Building stone.

Sample TU21

Type of rock: Volcanic

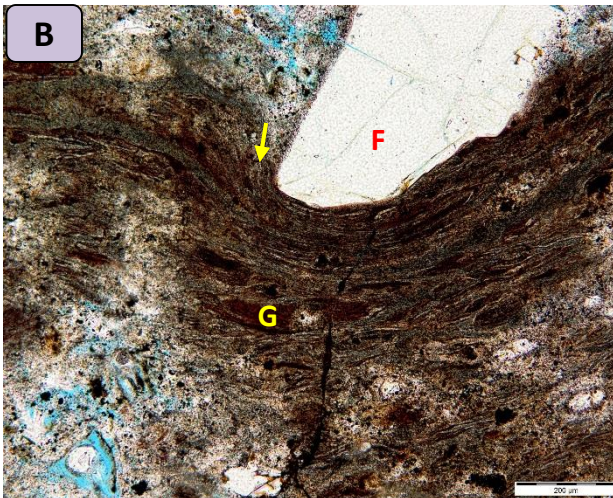
Age: Unknown

Location/Formation: Sardinia, Italy



PPL image

Magnification: 11x



PPL image

Magnification: 113x