Geolab Services

Samples preparation
- Crushing, milling and cutting
- Core sawing and sampling
- Polished surfaces
- Thin sections

Particle size and Classification Analysis
- Dry and wet sieving (> 45 µm)
- Hydrocycloning
- Elutriation

Concentration tests
- Jigging
- Wet and dry gravity
- Wet and dry magnetic separation (low and high intensity)-
- Electrostatic separation
- Froth flotation (classical and column)

Mineralogical, Petrographic and textural analysis
- X-Ray Diffraction
- Petrographic and metallographic 2D microscopy
- 3D microscopy (X-ray Microtomography)
- IR Spectrometry FTIR
- Thermogravimetry - Calorimetry (TG - DSC)

Ageing tests
- In climatic and corrosion chamber (SO_2, NO, NO_2, CO_2, gases, temperature and relative humidity controlled)
- Wetting/drying and IR-heating
- Resistance to ageing by thermal shock (EN 14066, 2013)
- Resistance to salt crystallization (EN 12370, 1999)

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Water analysis
- Determination of pH, temperature, electrical conductivity, redox potential (by electric probes)
- Alkalinity (by titration)
- Dry residue and total suspended soils (by gravimetry)
- Fluoride, chloride, bromide, nitrite, nitrate, phosphate and sulphate (by IC)

Physical/Chemical Parameters:
- Open porosity (EN 1936, 2008)
- Water content (EN 1936, 2008)
- Apparent density (EN 1936, 2008)
- Water absorption at atmospheric pressure (EN 13755, 2008)
- Capillary water absorption coefficient (EN 1925, 2008)
- Permeability under constant pressure
- Colour and gloss
- Soil pH (Póvoas & Barral, 1992)
- paste pH (Suggested method of MEND, 1991)
- Soil salinity (conductivity of saturated soil-paste extract) (Póvoas & Barral, 1992)
- Soil humus substances (identification)

Index Properties
- Swelling (Suggested Methods of ISRM, 2007)
- Slake durability (Suggested Methods of ISRM, 2007)
- Hardness Determination by Schmidt Hammer (Suggested Methods of ISRM, 2007)

Sound Velocity Determination
- P and S wave velocity (Suggested Methods of ISRM, 2007)

Mechanical Properties
Deformability
- Young Modulus static (EN 14580, 2007; Suggested Methods of ISRM, 2007)
- Young Modulus dynamic (Suggested Methods of ISRM, 2007)
- Poisson Ratio (Suggested Methods of ISRM, 2007)

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Strength

- Direct Tensile (Suggested Methods of ISRM, 2007)
- Indirect Tensile, Brazilian Test (Suggested Methods of ISRM, 2007)
- Uniaxial Compression (EN 1926, 2006; Suggested Methods of ISRM, 2007)
- Triaxial Compression (Suggested Methods of ISRM, 2007)
- Shear (Suggested Methods of ISRM, 2007)
- Flexural under concentrated Load (EN 12372, 2006)

Ground Vibration Monitoring (NP 2074, 2015; ISO 2631, 2003)