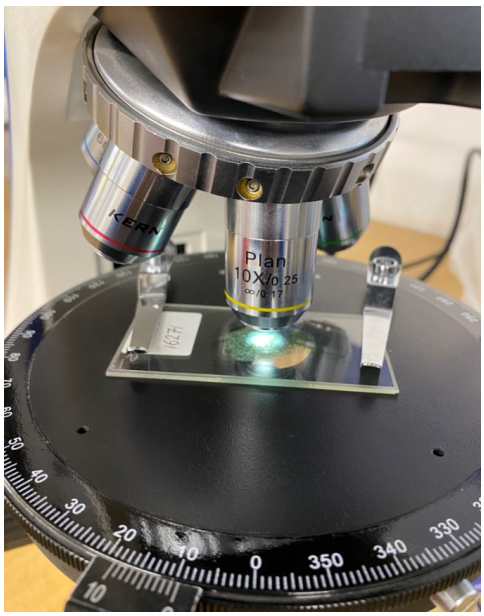
GEOLABS®

Petrographic Services

Independent Soil and Rock Geotechnical Laboratory Testing

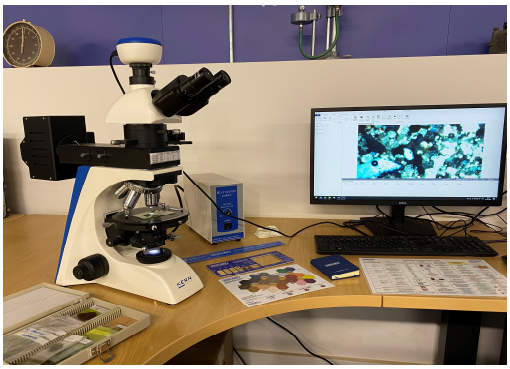
Testing Facilities

Geolabs Limited have a dedicated team of experienced petrographers to conduct petrographic examination in rock, aggregate, sand, concrete, mortar, bricks, plaster and other building and construction materials. Some of the examples are:



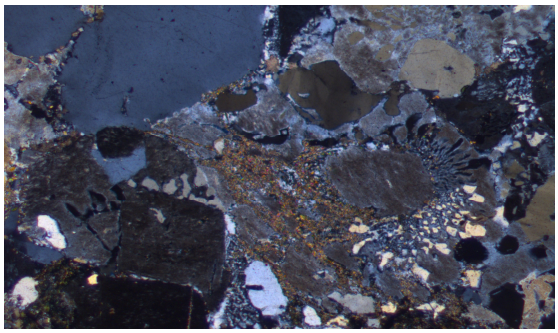
- ***ISRM 1974 – 2006*** *- Suggested Method for Petrographic Description of Rocks.*
- ***BS EN 1997 Eurocode****,* ***Part 2 / BS 5930 + A1*** *- Code of Practice for Site Investigation.*
- ***ISO 14689*** *- Identification and classification of rock.*
- ***BS EN 12407*** *- Natural Stone tests Methods - Petrographic Examination.*
- ***BS EN 12670*** *- Natural Stone tests Methods - Petrographic Examination.*
- ***BS EN 12620*** *- Aggregates for concrete.*
- ***ASTM C295/C295M*** *- Standard Guide for Petrographic Examination of Aggregates for Concrete.*
- ***BS EN 932-3*** *- Tests for general properties of aggregates Part 3: Procedure and terminology for simplified petrographic description.*
- ***BS 7943*** *- Guide to the Interpretation of Petrographical Examinations for Alkali-Silica Reactivity.*
- ***ASTM C856/C856M*** *- Standard Practice for Petrographic Examination of Hardened Concrete.*
- ***ASTM C1324: 20a*** *- Standard Test Method for Examination and Analysis of Hardened Masonry Mortar.*
- *Other Documented In-house procedures for specific building and construction materials.*

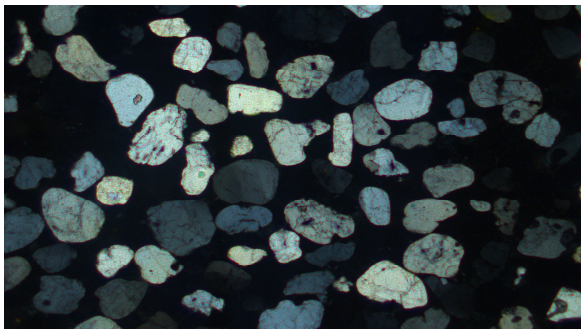
Our laboratory has the latest equipment for the full range of petrographic examination including a Leica microscope, cameras and software to inspect, analyse, measure and document a variety of different type of samples. The system has ergonomically designed high-quality imaging systems to tackle everything from everyday routine analyses to the most challenging materials' research applications.



Rock, Aggregate & Sand

Petrographic analysis provides in-depth investigation of the physical features of a particular rock sample and a complete analysis covers macroscopic to microscopic investigations of the rock sample. Aggregate testing plays a vital role in the construction project by providing owners, designers and contractors with valuable information throughout a project's progress.

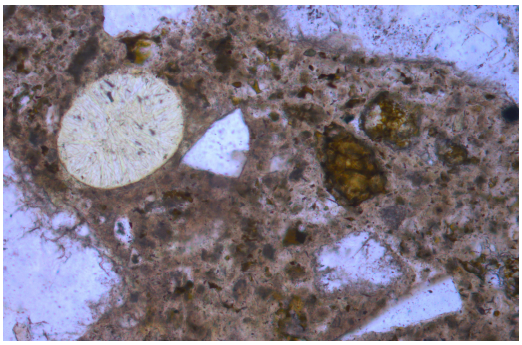


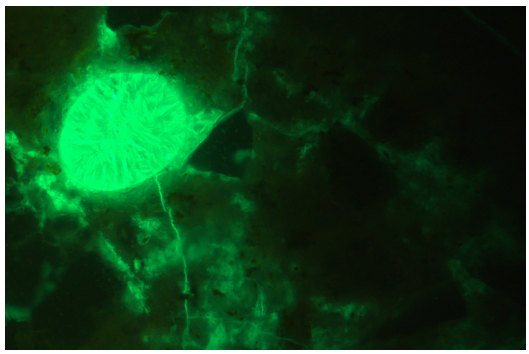


In concrete aggregates, petrographic examinations are used to characterize the rock type, name, and its suitability for use as a concrete aggregate. This helps to identify the constituents that are susceptible to alkali silica reactions in concrete and also when used in freeze/thaw environments.

Concrete, Mortar & Plaster

Petrographic examination that follows ASTM C856 can be applied to verify that the product was mixed as designed and that the appropriate or specified materials were used. Concrete petrography also helps to identify the nature of deterioration or defects, determine the degree of damage, and to evaluate whether the damage will continue. Perhaps most critically, petrographic analyses aid repair versus replace decisions, making them an integral part of evaluation strategies.





Geolabs Limited can also investigate hardened concrete by looking at the following:

- Aggregate type (mineralogical), characteristics, size & distribution
- Cement type
- Mineral additives (ground granulated blast furnace slag, fly ash, silica fume, etc.)
- Micro-crackings
- Degree of cement hydration, air void content and Water-cement (w/c) ratio
- Micro-porosity
- Carbonation depth
- Alkali-silica reaction (ASR), Alkali-carbonate reaction (ACR)
- Sulphate attack (ettringite & thaumasite), Delayed Ettringite Formation (DEF)
- Fire damage