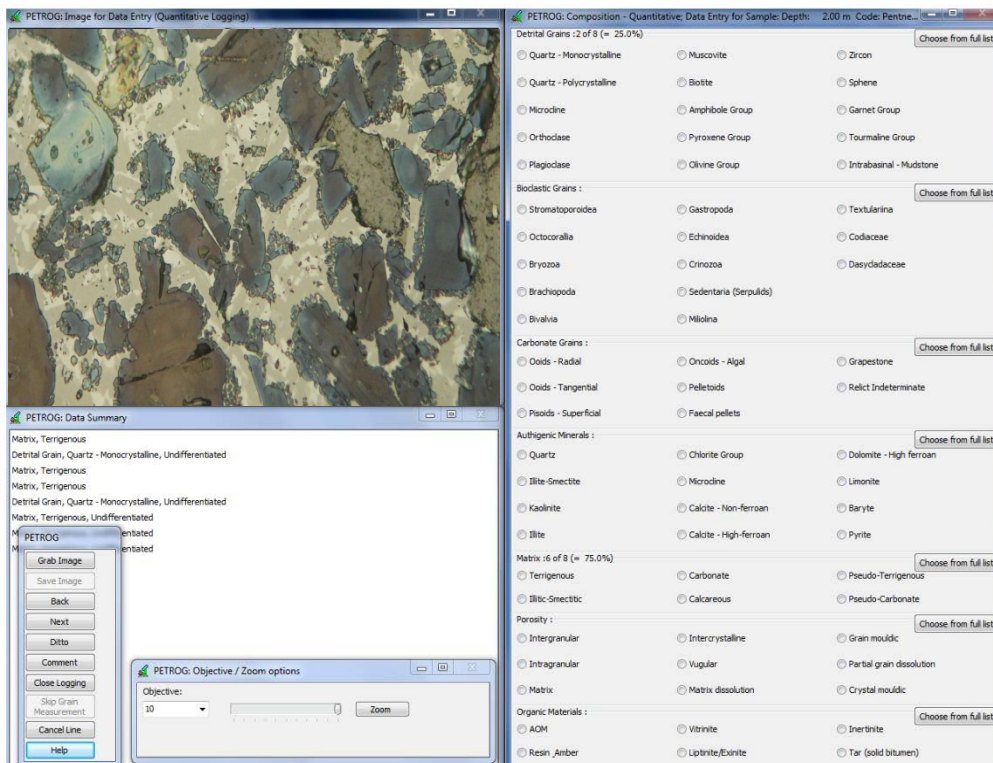


PETROG™ for Cement Clinker Petrography

Point-counting is an important tool for quality assurance of cement clinker. It is not replaced by tools such as Rietveld refinement. Rather, visual examination of the material using reflected light microscopy on polished blocks is essential for ascertaining the minerals composition in addition to the chemical composition given by XRD/XRF techniques. Point counting is primarily used to determine the relative proportions of four constituents: alite, belite, aluminate, and ferrite.

PETROG™ is uniquely able to provide support for cement clinker analysts in:

- Acquisition of the petrographic information from polished blocks, combining compositional and textural data, and analysing them both together and separately;
- Digital SteppingStage with automated or user defined interval and area parameters

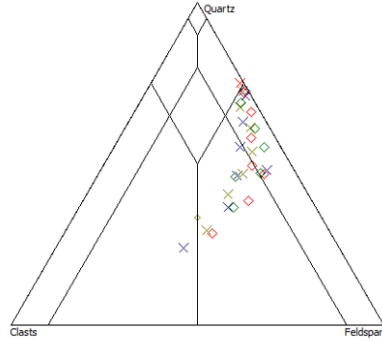
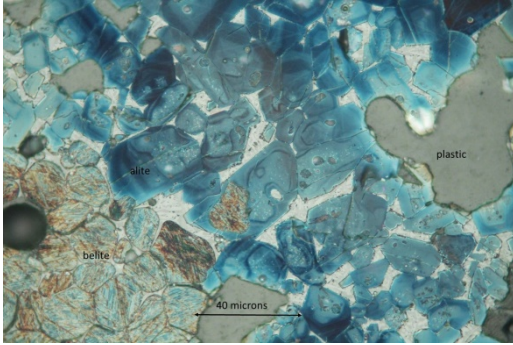


- Logging of constituent components via predefined and user specific databases
- Accurate long and short axis measurement of these components using the calibrated microscope camera feed.
- Analysing images concurrently with the data, providing considerably more insight than can be gleaned from either separately;
- Combining descriptive and numerical data, as appropriate to the quality of the material and the depth of analysis required;

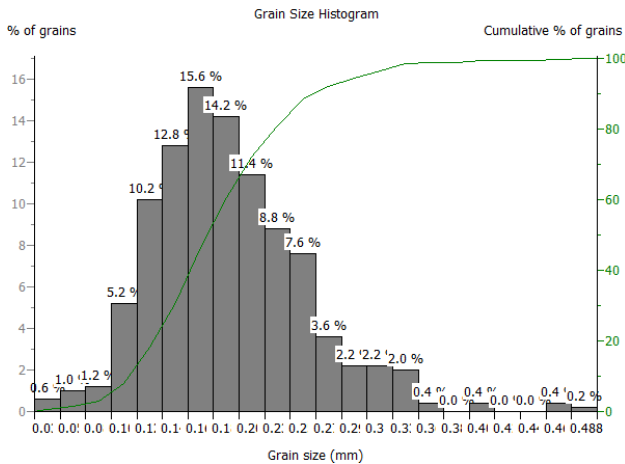
PETROG™

for Cement Clinker Petrography

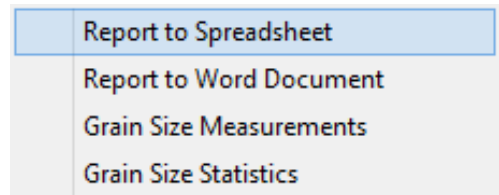
- Cataloguing, managing, sharing and archiving data and images simultaneously;
- Analysis of compositional data, including triangular diagrams, pie charts and downhole plots;



- Analysis of textural data, including size distribution histograms, mean, mode, standard deviation, sphericity and orientation.



- Reporting, in pre-formed reports using Word and as numerical data for use in Excel or more detailed statistical analysis packages.



Quantitative XRD provides information on the crystal types present. However, visual examination of the clinker accompanied by statistical assessment, not only of the mineral type but also of its genesis in the kiln, will assist in choosing the optimum way to reduce costs and improve quality. For example, high levels of belite may be present in several forms: as residues from coarse silica in the kiln feed, as residues from fuel ash or as tight clusters of belite formed early in the process and difficult to combine with free lime to form alite. Knowing the actual extent of each of these from a statistical count, not only of crystal type, but also of the crystals' microstructural relationships can clearly demonstrate the priority for investing in efficiency and quality improvement.



e-mail: enquire@petrog.com
www.petrog.com