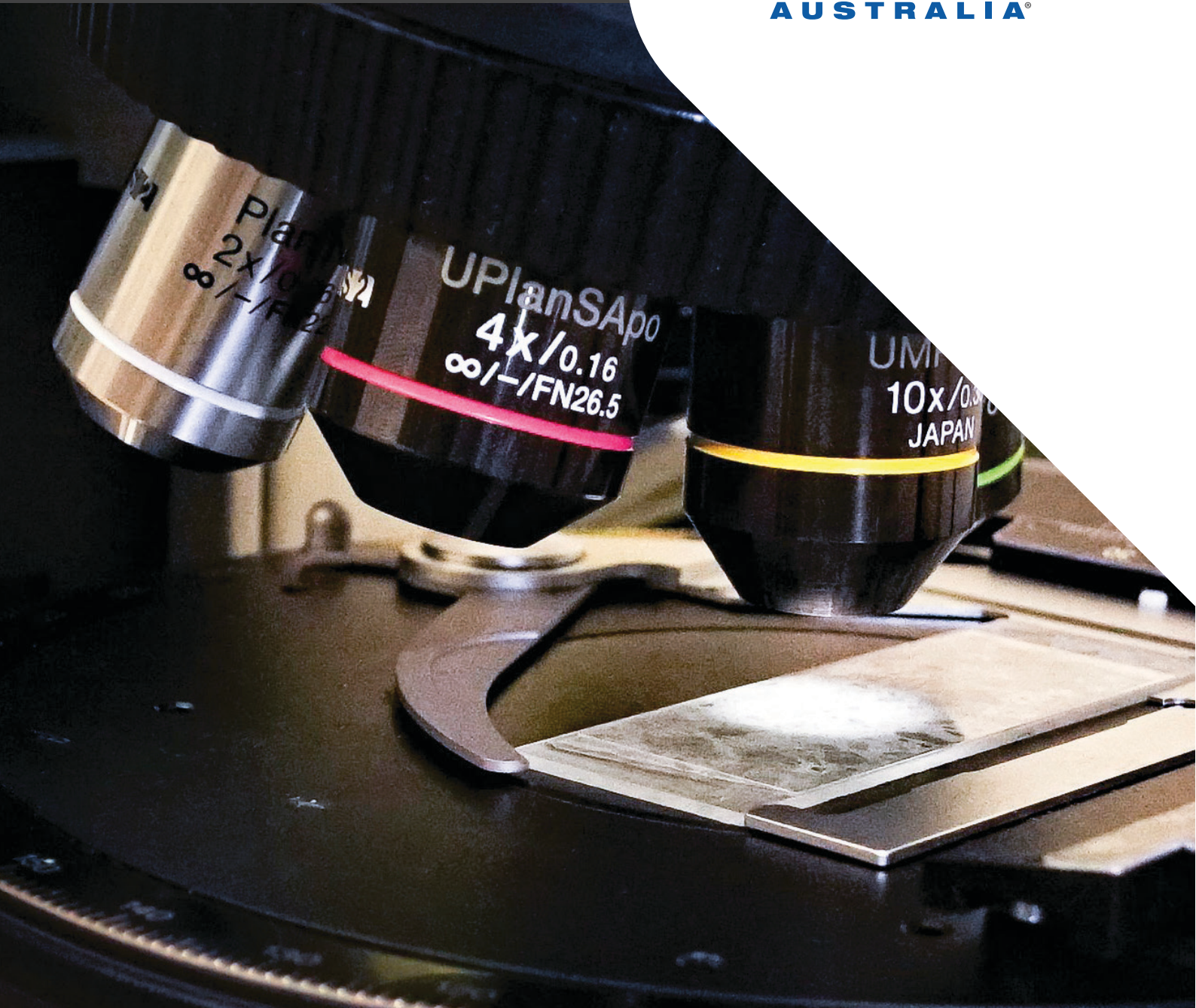


TECHNICAL

DURATEC
AUSTRALIA®



PETROGRAPHY LAB SERVICES

Petrography

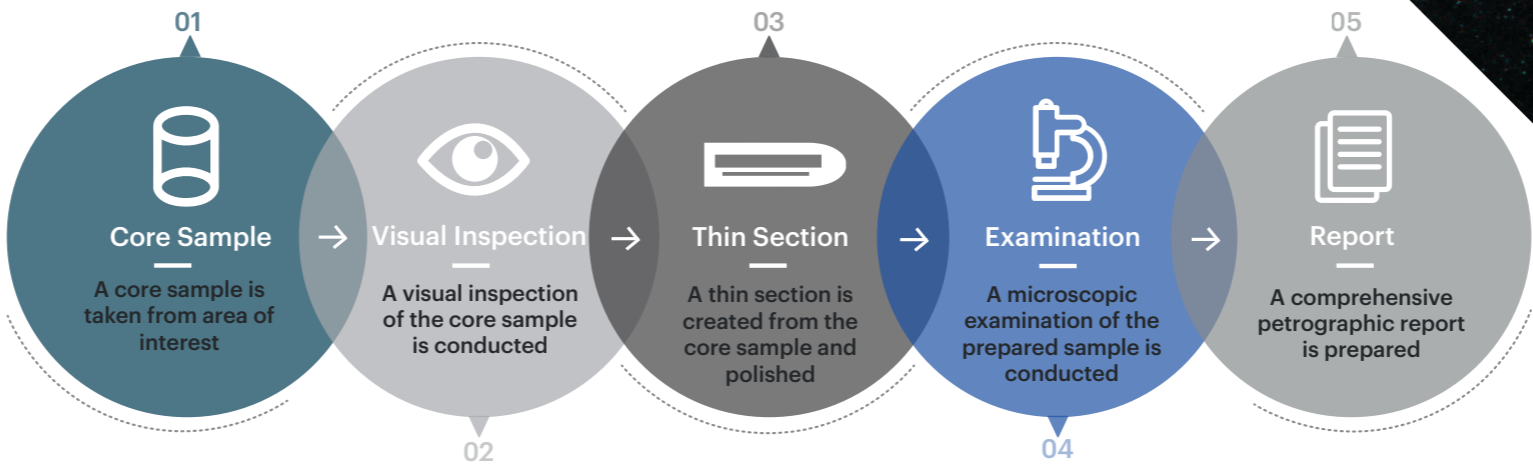
As structures age so does their structural integrity. At Duratec we pride ourselves on understanding the root cause of deterioration in order to provide intelligently engineered remediation solutions for our clients.

Our purpose-built microscopy facility offers comprehensive Petrography services providing a complete range of forensic and diagnostic examinations for raw materials and existing structures.

Petrography Solutions

Petrography is a geologic technique used to determine the makeup and geologic history of rock samples. Unlike other solutions that only determine that a structure is failing, our petrographic services can determine the root causes of deterioration as well as identify any likely deterioration that may occur in the future.

By combining our in-house petrography capability with our experienced remedial and durability engineering consultancy solutions, we can provide a unique insight into the health of your structure throughout its life cycle. This can aid in mix design verification at the time of construction as well as the development of targeted remediation strategies.



Heritage

When matching historic mortars and renders, knowing the composition of the original materials is paramount to creating an ideal match. Our petrographic team can determine the aggregate mineralogy and cement constituents of the sample, as well as the air content of the mortar. From the petrographic and wet chemistry data, the percentage of portland cement, hydrated lime and sand in the existing mortar is calculated aiding in the mix design for remedial mortars and renders.

Concrete

Concrete petrography plays a critical role in durability assessments of existing structures. Our experienced petrographers can determine the constituents of the cement paste, classify the aggregate/sand type, map crack/microcrack patterns, identify secondary deposits and much more. Through this process we can determine which deterioration mechanisms have occurred, are occurring or are likely to initiate. These include but are not limited to:

- Alkali-Silica Reaction
- Delayed Ettringite Formation
- Sulphate Attack
- Acid Attack
- Soft Water Attack

Aggregate

Understanding the potential for particular aggregates to undergo alkali-silica reaction (ASR) or have undesirable constituents is crucial when determining suitability for use. Aggregate petrography is used to analyse both coarse and fine aggregate to classify the rock/mineral types present and identify these deleterious constituents. The results of the analysis breakdown the weighted percentages of the rock and existing minerals in the sample, and these percentages can be compared to specifications to determine if the sample is suitable for use.

Other Materials

Building material without standard test methods can still be evaluated by petrography to determine their condition and properties. For example, bricks are tested to determine causes of cracking/spalling or degree of firing. Grouts can be looked at to determine their constituents and degree of hydration.

Our optical microscopy facilities can also be used for forensic investigations of coatings, metals and ceramics.

For more information visit our [Petrography web page](#)



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