

Field replication metallography: Theory & Practical

8th October 2025, 10am – 4pm

**R-TECH Materials, Testing House, Kenfig Industrial Estate,
Margam, Port Talbot, SA13 2PE**



Replication metallography is a non-destructive testing technique that can be used in-situ to facilitate the identification of a number of metal degradation mechanisms enabling their management, thus minimising unplanned outages and avoiding catastrophic failures.



The results of this technique can be used for a wide number of purposes, including but not limited to:

- Assessment of any high temperature creep damage.
- Assessment of spheroidisation & graphitisation in carbon and low alloy steels.
- Determination of crack morphology and path in order to support the management of defects and failure investigations.
- Assessment of sigma phase embrittlement and sensitisation in stainless steels.
- Fire damage assessment.
- Verification of a metal's microstructure in-situ.
- Assessment of defects detected by conventional NDT.
- Collection of catalytic fines.

In essence this technique enables a copy of the underlying material microstructure, without requiring the removal of a physical samp



Attendees will gain a comprehensive understanding of replication metallography, its applications in identifying metal degradation mechanisms, best practices for conducting tests, and hands-on training to master the technique



Cost £550.00 + VAT

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The course structure will include the following:

1. Introduction
2. Examples of degradation mechanisms that can be identified by replication metallography
 - a. Spheroidisation
 - b. Graphitisation
 - c. Sigma phase embrittlement
 - d. Sensitisation
 - e. Creep
 - f. Crack morphology
3. Replication metallography
 - a. Introduction to Metallography
 - b. Field replication metallography
 - c. Surface preparation
4. Practical training – Session 1
 - a. Discussion on practical training – challenges/observations
5. Replica Assessment
 - a. Spheroidisation
 - b. Creep
 - c. Sigma phase & sensitisation
 - d. Cracking
6. Practical training – Session 2
 - a. Discussion on practical training – challenges/observations

