



METALLOGRAPHIC REPLICAS

Go for a fast and accurate assessment
of the integrity of your equipment

> Why using replicas?

- To check the microstructure of a new equipment as accurately as in a laboratory
- To follow-up the metallurgical structure of in-service component at regular inspection intervals combined with an examination of mechanical properties through hardness testing
- To identify the nature and the origin of a surface-breaking defect or a crack (welding or material defects, fatigue or stress corrosion cracks, creep voids detection...)
- To assess the possible metallurgical damages caused by a fire



www.is-industrie.co.th

What links us
makes us stronger



> Why choosing IS Industrie ?

- Our experience of 30 years in the field of replicas (petrochemical, thermal and nuclear industry...)
- Our staff of 15 international experts
- Our ability for innovation with the development in partnership with Total of a specific procedure for the detection of creep damage at early stage (detection of creep microvoids)
- Our references with many replicas performed Worldwide for Total, Exxon Mobil, Shell, Technip, Saipem, EDF, GDF, Alstom, CMP, Total Petrochemicals...



Revamping of an equipment damaged by a fire



Making of a replica on a steam piping system

> The technique

- A standardized technique (ASTM E 1351, ISO 3057) which can be implemented on most metallic materials using portable polishing and etching devices and a field optical microscope
- The procedure to carry out metallographic replicas includes at least five stages
 1. Local grinding to eliminate surface layers (paint, decarburised layers, oxidation...)
 2. Mechanical polishing using abrasive papers and diamond paste
 3. Chemical or electrolytic etching of the polished area to reveal the microstructure
 4. Replication of the microstructure with a cellulose acetate film
 5. Observation of the structure with an optical microscope or a scanning electron microscope

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