

MATERIALS LABORATORY

IN-HOUSE CAPABILITIES



SAMPLE PREPARATION

Cutting _____ *Diamond saw to plasma cutter*
 Mounting _____ *Including large and odd-shaped samples*
 Grinding _____
 Polishing _____
 Etching _____ *Including carbon steel, low alloy steel, stainless steel, nickel-based alloys, superalloys, copper and copper alloys, aluminum, titanium, etc.*

SAMPLE EXAMINATION & DOCUMENTATION

Visual _____
 Digital 35mm camera _____ *With macro capabilities*
 Stereomicroscope _____ *0.65 to 50X*
 Metallograph _____ *up to 1000X*
 Keyence VXX Digital Microscope _____ *20-2500X*
 SEM _____ *20 to 5000X and higher*

HARDNESS TESTING

Rockwell _____ *A, B, C, superficial scales*
 Brinell _____ *Load Range = 500 – 3000 Kg*
 Vickers-microhardness _____ *Load Range = 0.1 – 1 Kg*
 Vickers _____ *Automated, Load Range = 0.01 – 50Kgf*
 Portable _____ *UCI, Rebound, Brinell, Telebrineller*

DEPOSIT ANALYSIS

SEM-EDS/SQ _____
 with SDD detector _____ *Bulk and in situ element identification*
 Elemental Mapping _____

CHEMICAL COMPOSITION

SEM – EDS/SQ _____ *Bulk and in situ element identification*
 PMI _____ *Olympus Vanta C Series X-ray Fluorescence Spectrometer*

BENCH TOP HEAT TREATING

Up to 1300°C (2372°F)

CRYO-CRACKING

Combines microstructural analysis and fractography to evaluate the presence of incipient creep damage

COMMONLY SUBCONTRACTED LABORATORY CAPABILITIES

Quantitative Chemical Analysis
 X-ray Diffraction
 Mechanical Testing
 Creep/Stress Rupture Testing



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