



### ABOUT THE MSC

SI's Materials Science Center (MSC) is a full-service metallurgical laboratory that, when paired with other SI Services, creates an integrated approach to addressing our clients' needs.



Our state-of-the-art examination equipment incorporates the tools for our expert staff to provide accurate results and detailed documentation for condition assessments and failure analyses.



The MSC features a large examination workshop, a high-bay dock, and lifting equipment capable of handling large specimens.



### 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 – 50Kg*  
 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

### SPECIALIZED SERVICES

Weld Assessments, Metal Shavings Samples, Laser Scanning, Creep Damage Assessments, Coatings Thickness Measurements