

# SCIENTIFIC TECHNICAL SERVICES

## **GfE Fremat GmbH Diagnostics Services**

## **METALLOGRAPHY**

#### Sample preparation

- abrasive cutting machinery
- cold, warm and UV embedding
- grinding and polishing using a semi-automatic preparation technique
- material-specific microstructural contrasting/etching (chemical)

Our preparation has the aim of achieving the best possible quality including a high rate of reproducibility and the efficient utilization of time and materials.





#### **Evaluation and documentation**

Light microscopy with modern image archiving

- digital camera (macro photography)
- stereomicroscopy
- light microscopy bright field, dark field, polarized light, fluorescence contrast, differential interference contrast
- reporting in digital and paper form
- determination of coating thickness\*
- grain size analysis\*
- corrosion tests\*
- client support and consultation by the responsible employee or a team of experienced company staff
- \* in accredited field

#### **Quantitative Metallography**

 analysis software Grain size analysis of single and multiphase materials. Analysis of phase fractions and porosities etc.









## www.amg-titanium-de.com

GfE Fremat GmbH Gewerbegebiet Süd 20, 09618 Brand-Erbisdorf, Germany

## AMG TITANIUM

#### **MICROANALYSIS**

#### Scanning electron microscopy

- investigations of surfaces and micro-sections by means of high magnification
- elemental scanning maps
- linescans
- energy dispersive analysis (EDX)



- element determination by means of high resolution
- elemental scanning maps
- linescans







### MATERIAL TESTING

- hardness measurements based on various methods (HV\*, HB\*, HM, HRC)
- tensile\* and pressure tests
- adhesion tests
- heat treatment in laboratory annealing systems with temperature regulation and monitoring
- roughness measurement for the determination of surface characteristics
- \* in accredited field



#### PHYSICAL EXAMINATIONS

In the physical laboratory spray powders, sprayed layers and other materials are characterized by different methods:

- laser diffraction (wet/dry)
- density determination (bulk, tapped or hydrostatic density)
- flowability
- dilatometric measurements up to 1600 °C

