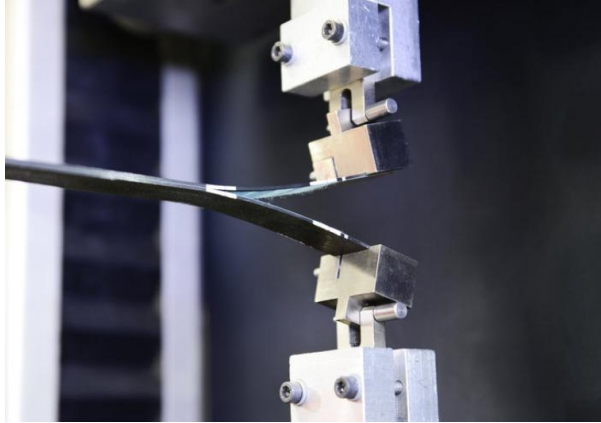


# Aerospace Materials Testing



## END-TO-END MATERIALS TESTING SERVICES

Applus+ is an strategic supplier of materials testing services for the aerospace industry. We provide an end-to-end testing service, covering a wide range of materials characterization tests combined with sample manufacturing and machining capabilities.

## MECHANICAL TESTING

- Tensile
- Compression
- Bearing
- Shear
- Flexural
- Drum peel
- High-cycle fatigue
- Low-cycle fatigue
- Crack propagation/crack growth
- Creep
- High strain rate
- Temperatures from -196°C to +1200°C

## SAMPLE PREPARATION

- Composite samples manufacturing
- Test samples machining and preparation
- Tabs bonding
- Low-stress grinding and polishing
- Samples conditioning
- Laser sample marking system: guarantees full traceability of each sample

## PHYSICAL-CHEMICAL TESTING

- Thermal analysis
- Physical analysis
- Rheological analysis
- Chemical analysis

## METALLURGY and FAILURE ANALYSIS

- Metallographic examinations
- Grain size
- Hardness
- Behavior in environmental conditions / corrosion
- Surface treatment testing



- Failure analysis
- Chemical analysis (OES)

## NON-DESTRUCTIVE TESTING

- Manual and automated NDT
- Techniques: VT, PT, MT, UT and ET

## A network of fully-accredited laboratories

Our network of materials testing laboratories in Europe and Asia are Nadcap accredited for metallic and non metallic materials testing. Applus+ materials laboratories is also approved by the leading aircraft manufacturers and their Tier 1 suppliers.

### ISO / IEC 17025 Accreditation

- Composites Testing
- Metals and Alloys Testing
- Polymers
- Coating

### NADCAP Accreditation

- Materials Testing Laboratory
- Non Metallic Materials Testing
- Non-destructive Testing

### Customer Approvals

- Airbus
- Airbus Helicopters
- Airbus Space and Defense
- Embraer
- Comac
- Safran
- Honeywell

- Avic
- AubertandDuval
- Areva

## **Customer support along the entire value chain**

- Material characterization: manufacturing and testing
- Raw material-incoming inspection activities
- Control process testing
- First-part qualification and witness testing
- Failure analysis for in-service support
- RandD support
- MicroVu laser control system: 100% control of our machining operations and the production of a complete report.

## **Digital solutions for materials testing, CAE simulation and materials data-management**

- TestPaks®: select material models, order tests online, convert data parameters and receive CAE-ready files
- CAETestBench®: validate your simulation against the results of laboratory-testing on standardized parts
- Matereality®: Software and infrastructure for material data management

## **Specialist in aero-engines materials testing**

- Fully equipped to work at high temperatures to support aero engine testing needs
- End to end capabilities: samples extraction, machining, dimensional check and testing
- Nadcap MTL accreditation for testing (A), (B), (KR), (O), (P), (XE), (Y) and machining (Z), (Z2)