



Embraer
Empresa Brasileira
de Aeronáutica S.A.

Av. Brigadeiro Faria Lima, 2.170
12227-901 - S. J. dos Campos - SP
Brasil

Tel.: +55(12) 3927-1662

Supplier Qualification Report

Supplier: Titania Ensayos y Proyectos Industriales
Address: Parque Tecnológico TecnoBahía
Edificio RETSE, Naves 1, 3, 4 y 5
11500 El Puerto de Santa María, Cádiz

Embraer's Quality Representative: Kilder Alves Gouveia

Supplier's Representative: Pedro Javier Astola González

Period: 11th of November of 2014

Registered to ISO 17025: Yes No

Results:

Embraer recognizes Titania as approved supplier for material testing services.

In order to verify the supplier capability and expertise on materials testing, Embraer's Representatives done a technical visit to Titania facilities and evaluated all test related processes, including specimen preparation, dimensional inspection, instrumentation, testing execution, failure inspection and test reports.

This Approval is given after complete evaluation of test processes above and examination of all quality system, management system, equipment, technical staff and accreditations (i.e. NadCap).

List of Approved Test and Services

-Metallic materials – Mechanical, Metallographic and Corrosion Testing:

- Tension
- Compression
- Bending,
- Hardness
- Shear
- Metallographic/Metallurgical Analysis
- Corrosion General
- Chemical Composition determination
- Specimen Preparation
- Specimen inspection

-Non-metallic materials / Composites –Mechanical Testing:

- Tensile Strength and Modulus
- Compression Strength and Modulus
- Compression After Impact
- Tension After Impact
- In plane shear
- Interlaminar Shear (ILSS)
- Bending
- Fracture toughness (GIC)
- Bearing (
- Single and double lap shear
- Pell metal-metal
- Flatwise Tensile
- Climbing Drum peel
- Specimen Conditioning
- Specimen Preparation (cutting, machining, tabbing)
- Optical microscopy

-Non-metallic materials/Composites –Physical/Chemical Testing and Thermal Analysis:

- Density
- Fiber, Resin, Void Volume Content
- Fiber Aerial weight
- Gel Time
- Flow
- Volatile Content
- Viscosity Liquid Resin
- Thermal analysis (DSC, DMA, IR/FTIR)
- Micrographic, Image Analysis system
- Paint and sealants characterization

-Non-Destructive Testing (for Test Specimen)

- Ultrasonic inspection (Manual Pulse-Echo)

This approval includes the possible variations of these tests, covered by international standards (i.e. ASTM), Nadcap Accreditations and according definitions of the Structures and Materials Engineering of EMBRAER S.A

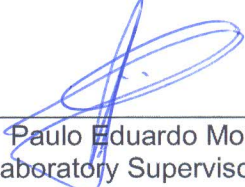
Notes:

- As EMBRAER S.A approved supplier, Titania will be audited periodically.
- This approval may be cancelled in case of major incidents detecting on one or more test methods.



Maurisergio Moraes
Gerência da Qualidade
Embraer

Maurisergio Moraes de Melo
Product Quality Manager - Embraer



Paulo Eduardo Moreira
Quality Laboratory Supervisor - Embraer