

ELEMENT MATERIALS TECHNOLOGY - TOULOUSE

3 AVENUE ANDRE MARIE AMPERE
ZAC LE PERGET
31770 COLOMIERS
France

FOR THE ATTENTION OF

Claude CALEFFI Technical Director
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CERTIFICATE PREPARED BY
FARION Raïssa

YOUR QTML FOCAL POINT
FARION Raïssa

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DATE
18/09/2020

OUR REFERENCE
SUR2019.0242 Ind. F

ARP-ID of the External Shop
147019

TYPE of External Shop
Independent

Attestation letter for Qualification on Test Methods

Dear Madam, Dear Sir,

We herewith inform that the couples <Test Methods / External Shop> as detailed in the Appendix have been either registered or modified in the Official Airbus Qualified Test Methods List (QTML).

The latest valid status of all qualified <Test Methods / External Shop> couples is published by regular QTML reports:

- On Airbus homepage for Suppliers (<https://www.airbus.com/be-an-airbus-supplier.html>) - Only Independent Labs.
- On Airbus Supply Portal A2QS - All External Shops.

A qualified couple is not linked to a specific product. It is the proof that the External Shop is meeting the requirement of the M20691.2: Perform Couple <Product/Supplier Site> Compliance and Maturity's Activities for Material Products Suppliers and/or M20691.3: Perform Couple <Product/Supplier Site> Compliance and Maturity's Activities for Aerostructure Parts Suppliers.

- On a quality aspect: we kindly ask you to indicate us any modification which could have a quality impact.
- Concerning technical requirements:
 - * We kindly ask you to participate at least every 2 years to the PTP for the tests you perform on Airbus Products (see Appendix for details on next PTP participation requirements).
You can find all necessary information about PTP participation process on the website: <https://ptpscheme.com>.
In case of PTP results out of tolerances, the couples qualification can be downgraded to an authorisation to proceed or withdrawn and the PTP participation frequency is reduced to one year, subject to acceptance by Airbus of your Root Cause Analysis and associated Corrective Actions.
 - * On the other hand, you shall supply at least every 2 years the results of your Internal Homogeneity Studies per Test Families.

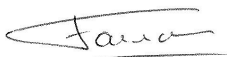
Airbus reserves the right to withdraw or suspend the qualification at any time for specific reason, e.g.

- Any major incident(s) detected on one or several Test processes
- Lack in quality
- Evidence non-compliance with the M20691.2 and/or M20691.3
- Loss of Airbus Supplier Approval
- Stop of the Business

Yours faithfully,

FARION Raïssa

**Airbus Test Methods Auditor POMDS – CE
Your QTML Focal Point**



SAUX Alexandra

**Test Methods Coordinator POMDS– CE
Your Quality Responsible**



Appendix: Matrix of qualified Couples <Test Methods / External Shop>

APPENDIX: Matrix of qualified Couples <Test Methods / External Shop>

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Test Standard(s) *	Test label	Complex.	Qualif. Status	Next PTP part. **	QCS Ref.	Remark
AITM 1-0007-A / B / C / D	Fibre reinforced plastics - Determination of plain, open hole and filled hole tensile strength	Low	Qualified	2021		
AITM 1-0008-A1	Fiber reinforced plastics - Determination of plain compression strength (Thick specimens, <200kN)	High	Qualified	2020	111411	
AITM 1-0008-A2	Fiber reinforced plastics - Determination of plain compression strength (Thin specimens, <100 kN)	High	Qualified	2021	111411	
AITM 1-0008-B / C / D	Fiber reinforced plastics - Determination of open hole or filled hole compression strength	Low	Qualified	2020		
AITM 1-0047	Determination of apparent interlaminar shear strength of fibre metal laminates (Glare materials)	Low	Qualified			
AITM 1-0048	Compression test method of fibre metal laminates (Glare materials)	Low	Qualified			
AITM 1-0049	Tensile test method of fibre metal laminates (Glare materials)	Low	Qualified			
AITM 1-0050-A / B	Test method for the determination of blunt notch open and filled hole tensile strength of fibre metal laminates (Glare materials)	Low	Qualified			
AITM 1-0059	In-plane-shear test on fibre metal laminates (Glare material)	Low	Qualified			
ASTM B117	Standard practice for operating salt spray (Fog) apparatus	Low	Qualified	2020		
ASTM B213	Standard test methods for flow rate of metal powders using the hall flow meter funnel	Low	Qualified	TBD *		
ASTM B214	Standard test method for sieve analysis of metal powders	Low	Qualified	TBD *		
ASTM B215	Standard practices for sampling metal powders	Low	Qualified			
ASTM B417	Standard test method for apparent density of non-free-flowing metal powders using the Carney funnel	Low	Qualified	TBD *		
ASTM B527	Standard test method for determination of tap density of metallic powders and compounds	Low	Qualified	TBD *		
ASTM B769	Shear testing of aluminium alloys	Low	Qualified			All types of alloys

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ASTM B822	Standard test method for particle size distribution of metal powders and related compounds by light scattering	Low	Qualified	TBD *		
ASTM E111	Young's modulus, tangent modulus, and chord modulus	High	Authorised to Proceed December 2020			
ASTM E112	Determining average grain size	Low	Qualified	2020		
ASTM E238	Pin-type bearing test of metallic materials	High	Qualified	2021	151194	
ASTM E3	Standard guide for preparation of metallographic specimens	Low	Qualified			
ASTM E340	Macroetching metals and alloys	Low	Qualified			
ASTM E399	Linear-elastic plane-strain fracture toughness K _{Ic} of metallic materials	High	Qualified	2020	171304	
ASTM E407	Microetching metals and alloys	Low	Qualified			
ASTM E45	Determining the inclusion content of steel	Low	Qualified	2021		
ASTM E647	Measurement of fatigue crack growth rates (da/dn)	High	Qualified with limitations	2021	QCS1314 CT and MT Specimens 01	
ASTM E8	Tension testing of metallic materials	Low	Qualified	2021		
ASTM E9	Compression testing of metallic materials at room temperature	Low	Qualified	2021		
ASTM F2111-A	Standard practice for measuring intergranular attack or end grain pitting on metals caused by aircraft chemical processes	Low	Qualified			
ASTM G110	Evaluating intergranular corrosion resistance of heat treatable aluminium alloys by immersion in sodium chloride + hydrogen peroxide solution	Low	Qualified			
ASTM G34	Exfoliation corrosion susceptibility in 2XXX and 7XXX series aluminum alloys (EXCO Test)	Low	Qualified			
ASTM G44	Standard practice for exposure of metals and alloys by alternate immersion in neutral 3.5 % sodium chloride solution	High	Qualified	2021	151182	

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ASTM G47	Determining susceptibility to stress-corrosion cracking of 2XXX and 7XXX aluminum alloy products	High	Qualified	2021	151182	
ASTM G49	Standard practice for preparation and use of direct tension stress-corrosion test specimens	High	Qualified	2021	151182	
EN 2002-1	Tensile testing at ambient temperature	Low	Qualified	2021		
EN 2002-6	Metallic materials: Bend testing	Low	Qualified			
EN 2003-9	Titanium and titanium alloys - Part 9: Determination of surface contamination (method A: Micrographic examination / Method B: Hardness testing)	Low	Qualified	2021		
EN 2561	Carbon Fibre reinforced plastics - Unidirectional laminates - Tensile test parallel to the fibre direction	Low	Qualified	2021		
EN 2832	Hydrogen embrittlement of steel - Notched specimen test	Low	Qualified	2020		
EN 2850-B (PREN)	Carbon fibre thermosetting resin unidirectional laminates - Compression test parallel to fibre direction - Method B	Low	Authorised to Proceed December 2020	2020		
EN 3615	Fibre reinforced plastics - Determination of the conditions of exposure to humid atmosphere and of moisture absorption	Low	Qualified			
EN 3665	Paints and varnishes - Filiform corrosion resistance test on aluminium alloys	Low	Qualified			
EN 6072	Constant amplitude fatigue testing (HCF)	High	Qualified	2021		
EN 6072 (machining)	Fatigue test specimen machining (NADCAP test code O)	None	Qualified			
ISO 13320	Particle size analysis - Laser diffraction methods	Low	Qualified			
ISO 1463	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	Low	Qualified	2020		
ISO 148-1 (low temp.)	Charpy pendulum impact test (low temperature)	Low	Qualified with limitations	2020		Not qualified for lateral expansion

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ISO 148-1 (room temp.)	Charpy pendulum impact test (ambient temperature)	Low	Authorised to Proceed December 2020	2020		Absorbed Energy only
ISO 2360	Non-conductive coatings on non-magnetic electrically conductive basis materials - Measurement of coating thickness - Amplitude-sensitive eddy current method	Low	Qualified	2020		
ISO 2409	Paints and varnishes - Cross-cut test	Low	Qualified	2020		
ISO 2808	Paints and varnishes - Determination of film thickness	Low	Qualified	2020		
ISO 2812-2	Paints and varnishes - Determination of resistance to liquids - Part 2: Water immersion method	Low	Qualified	2020		
ISO 2819	Metallic coatings on metallic substrates - Electrodeposited and chemically deposited coatings - Review of methods available for testing adhesion	Low	Qualified			
ISO 4287	Geometrical product specifications (GPS) - Surface texture: Profile method - Terms, definitions and surface texture parameters	Low	Qualified			
ISO 4288	Geometrical product specifications (GPS) - Surface texture: Profile method - Rules and procedures for the assessment of surface texture	Low	Qualified			
ISO 643	Steels - Micrographic determination of the apparent grain size	Low	Qualified	2020		
ISO 6508	Metallic materials - Rockwell hardness test	Low	Qualified	2020		
ISO 6892	Metallic materials - Tensile testing - Part 1: Method of test at room temperature / Part 2: Method of test at elevated temperature / Part 3: Method of test at low temperature	Low	Qualified	2021		
ISO 9227	Corrosion tests in artificial atmospheres - Salt spray tests	Low	Qualified	2020		
NASM 1312-1	Fastener test methods - Method 1: Salt Spray	Low	Qualified			
NASM 1312-12	Fastener test methods - Method 12: Thickness of metallic coatings	Low	Qualified			

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NASM 1312-18	Fastener test methods - Method 18: Elevated temperature tensile strength	Low	Qualified			
NASM 1312-4	Fastener test methods - Method 4: Lap joint shear	Low	Qualified			
NASM 1312-8	Fastener test methods - Method 8: Tensile strength	Low	Authorised to Proceed December 2020	2020		
Z_mechanical tests	Various mechanical tests	None	Qualified			
Z_Metal. Spec. prep	Metallic specimen preparation (for mechanical testing)	None	Qualified			
Z_Opt. metallo.	Optical metallography	None	Qualified			
Z_SEM	Scanning Electron Microscopy (SEM)	None	Qualified			

* Unless otherwise specified, last issue of the standard shall apply.

** Next PTP participation year is given for information - It is the External Shop's responsibility to check every year on the PTP Website (<https://ptpscheme.com/>) which kits are proposed.