

GMA-WERKSTOFFPRUEFUNG GMBH STADE BRANCH

Julius Leber Weg 24
21684 STADE
Germany

FOR THE ATTENTION OF

Pawel LESNIEWSKI Technical Manager
Rafael LUTERBACHER DT lab responsible
Ingo MARX Sales Manager
Rüdiger VOLLMERHAUS Branch Manager
Oliver WARNKE Project Manager Quality Systems
Bernd ZAHAB Head of Laboratory DT

CERTIFICATE PREPARED BY
GRADISTANAC Jérôme

YOUR QTML FOCAL POINT
GRADISTANAC Jérôme

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DATE
26/02/2021

OUR REFERENCE
SUR2020.0162 Ind. F

ARP-ID of the External Shop
262425

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In case of PTP results out of tolerances, the couples qualification can be downgraded to an authorisation to proceed or withdrawn and the PTP participation frequency is reduced to one year, subject to acceptance by Airbus of your Root Cause Analysis and associated Corrective Actions.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,

GRADISTANAC Jérôme
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 1-0001	Fiber reinforced plastics - Determination of mechanical degradation due to chemical paint strippers	Low	Qualified			
AITM 1-0002	Fibre reinforced plastics - Determination of in-plane shear properties ($\pm 45^\circ$ tensile test)	Low	Qualified	2021		
AITM 1-0003	Determination of the glass transition temperatures (DMA)	High	Qualified	2021	131017	
AITM 1-0005	Fibre reinforced plastics - Determination of interlaminar fracture toughness energy - Mode I - G1c	High	Qualified	2022	130097	
AITM 1-0006	Fibre reinforced plastics - Determination of interlaminar fracture toughness energy - Mode II - GIIC	High	Qualified	TBD *		
AITM 1-0007-A / B / C / D	Fibre reinforced plastics - Determination of plain, open hole and filled hole tensile strength	Low	Authorised to Proceed June 2021	2021		Pending 2021 PTP
AITM 1-0008-A1	Fiber reinforced plastics - Determination of plain compression strength (Thick specimens, <200kN)	High	Qualified	2022	126589	
AITM 1-0008-A2	Fiber reinforced plastics - Determination of plain compression strength (Thin specimens, <100 kN)	High	Qualified	2021	126590	
AITM 1-0008-B / C / D	Fiber reinforced plastics - Determination of open hole or filled hole compression strength	Low	Qualified	N/A		
AITM 1-0009-1 / 2	Fibre reinforced plastics - Determination of bearing strength by either pin or bolt bearing configuration	High	Authorised to Proceed March 2021	2020	141173	Pending RCA analysis by Engineering
AITM 1-0010	Fibre reinforced plastics - Determination of compression strength after impact	High	Qualified	2021	140455	
AITM 1-0019	Determination of tensile lap shear strength of composite joints	Low	Qualified	2021		Also qualified for QVA-Z10-46-09 (restricted to Legacy Programs)
AITM 1-0025	Fiber reinforced plastics - Flatwise tensile test of composite sandwich panel	Low	Qualified	2021		
AITM 1-0029	Fibre reinforced plastics - Determination of tensile strength of a tapered or stepped joint	Low	Qualified			
AITM 1-0053	Carbon fibre reinforced plastics - Determination of fracture toughness energy of bonded joints - Mode I - G1c	High	Qualified	2022	130097	Valid for the Issue 4 of the norm

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AITM 1-0066	Fibre reinforced plastics – Determination of pull-out / pull-through strength on riveted joints	Low	Qualified			
AITM 1-0070 (incl. ISO 4287)	Surface roughness measurements using surface stylus methods	Low	Qualified			
AITM 2-0001	Fibre reinforced plastics - Determination of the exothermic reaction during curing of prepreg materials	Low	Qualified			
AITM 2-0061	Water pick up test-method to determine the impregnation level of prepreg materials	Low	Qualified			
AITM 3-0001	Analysis of thermoset systems by high performance liquid chromatography (HPLC)	Low	Qualified			
AITM 3-0002	Analysis of non metallic material (uncured) by differential scanning calorimetry (DSC)	High	Authorised to Proceed March 2021	2020	101065	Pending RCA analysis by Engineering
AITM 3-0003	Analysis of organic compounds by infrared spectroscopy (IR)	Low	Qualified			
AITM 3-0008	Determination of the extent of cure by differential scanning calorimetry (DSC)	High	Authorised to Proceed March 2021	2020	101065	Pending RCA analysis by Engineering
AITM 4-0003	Test method for determining the pore content of fibre reinforced plastics using automatic image analysis	High	Qualified	2020	090266	
AITM 4-0005	Macroscopic and microscopic examination of fiber reinforced plastics	Low	Qualified			
ASTM C273	Shear properties of sandwich core materials	Low	Qualified			
ASTM C365	Flatwise compressive properties of sandwich cores	Low	Qualified			
ASTM C393	Core shear properties of sandwich constructions by beam flexure	Low	Qualified			
ASTM D2734	Void content of reinforced plastics	Low	Qualified			
EN 2243-1	Structural adhesives - Part 1: Single lap shear	Low	Qualified	2021		
EN 2243-2	Structural adhesives - Part 2: Peel metal-metal	Low	Qualified	2021		Also qualified for QVA-Z10-46-03 (restricted to Legacy Programs)

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EN 2243-3	Structural adhesives - Part 3: Peeling test metal-honeycomb core	Low	Qualified	2021		Also qualified for QVA-Z10-46-05 (restricted to Legacy Programs)
EN 2243-4	Structural adhesives - Part 4: Metal-honeycomb core flatwise tensile test	Low	Qualified	2021		
EN 2329	Textile glass fibre preimpregnates - Test method for the determination of mass per unit area	Low	Qualified			
EN 2330	Textile glass fibre preimpregnates - Test method for the determination of the content of volatile matter	Low	Qualified			
EN 2331	Textile glass fibre preimpregnates - Test method for the determination of the resin and fibre content and mass of fibre per unit area	Low	Qualified			
EN 2332	Textile glass fibre preimpregnates - Test method for the determination of the resin flow	Low	Qualified			
EN 2557	Carbon fibre preimpregnates - Determination of mass per unit area	Low	Qualified			
EN 2558	Carbon fibre preimpregnates - Determination of the volatile content	Low	Qualified			Also qualified for QVA-Z10-46-11 (restricted to Legacy Programs)
EN 2559	Carbon fibre preimpregnates - Test method for the determination of the resin and fibre content and the mass of fibre per unit area	Low	Qualified			
EN 2560	Carbon fibre preimpregnates - Determination of the resin flow	Low	Qualified			Also qualified for QVA-Z10-46-33 and I+D-E-242 (restricted to Legacy Programs)
EN 2561	Carbon Fibre reinforced plastics - Unidirectional laminates - Tensile test parallel to the fibre direction	Low	Authorised to Proceed June 2021	2021		Also qualified for QVA-Z10-46-36 Verf.B and I+D-E-26 (restricted to Legacy Programs) Pending 2021 PTP
EN 2562	Carbon fibre reinforced plastics - Unidirectional laminates - Flexural test parallel to the fibre direction	Low	Qualified	2022		
EN 2563	Carbon fibre reinforced plastics - Unidirectional laminates - determination of apparent interlaminar shear strength	Low	Qualified	2022		Also qualified for I+D-E-31 (restricted to Legacy Programs)
EN 2564	Carbon fibre laminates - Determination of the fibre, resin and void contents	Low	Qualified	2021		
EN 2597	Carbon Fibre reinforced plastics - Unidirectional laminates - Tensile test perpendicular to the fibre direction	Low	Qualified			

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EN 2667-1 (Pren)	Foaming structural adhesives - Part 1: Tensile single-lap shear	Low	Qualified			Also qualified for QVA-Z10-46-01 (restricted to Legacy Programs)
EN 2667-2 (Pren)	Foaming structural adhesives - Part 2: Compressive tube shear	Low	Qualified			Also qualified for QVA-Z10-46-06 (restricted to Legacy Programs) EN 2667-2 is historical
EN 2667-3 (Pren)	Non-metallic materials - Foaming structural adhesive films - Test method - Part 3: Expansion ratio and volatile content	Low	Qualified			
EN 2746	Glass fibre reinforced plastics - Flexural test - Three point bend method	Low	Qualified	2022		
EN 2747	Glass fibre reinforced plastics - Tensile test	Low	Qualified			
EN 2823 (prEN)	Fibre reinforced plastics - Determination of the effect of exposure to humid atmosphere on physical and mechanical characteristics	Low	Qualified			
EN 2850-B (PREN)	Carbon fibre thermosetting resin unidirectional laminates - Compression test parallel to fibre direction - Method B	Low	Qualified	2020		
EN 6040	Aerospace series - Non-metallic materials - Test method - Analysis of thermoset systems by High Performance Liquid Chromatography (HPLC)	Low	Qualified			
EN 6042	Organic compounds - Test method - Analysis by infrared spectroscopy	Low	Qualified			
ISO 1172	Textiles - Glass reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content - Calcination method	Low	Qualified			
ISO 1183-1	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method	Low	Qualified			
ISO 14126-2	Fibre-reinforced plastic composites - Determination of compressive properties in the in-plane direction - Part 2	Low	Qualified	2022		

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ISO 14129	Fibre-reinforced plastic composites - Determination of the in-plane shear stress/shear strain response, including the in-plane shear modulus and strength, by the $\pm 45^\circ$ tension test method	Low	Qualified	2021		
ISO 14130	Fibre reinforced plastic composites - Determination of apparent interlaminar shear strength by short beam method	Low	Qualified			
ISO 2286-2	Rubber or plastics-coated fabrics - Determination of roll characteristics - Part 2: Methods for determination of the total mass per unit area, mass per unit area of coating and mass per unit area of substrate	Low	Qualified			qualified 03/04/2019
ISO 3801	Textiles; Woven fabrics; Determination of mass per unit length and mass per unit area	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 4592	Plastics - Film and sheeting - Determination of length and width	Low	Qualified			qualified 03/04/2019
ISO 4593	Plastics - Film and sheeting - Determination of the thickness by mechanical scanning	Low	Qualified			qualified 03/04/2019
ISO 527-2	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	Low	Qualified			
ISO 527-3	Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets	Low	Qualified			
ISO 527-5	Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites	Low	Qualified			
QVA-Z10-46-07	Determination of the flow adhesive films	Low	Qualified			Restricted to Legacy Programs
QVA-Z10-46-08	Determination of weight per unit area of adhesive foils, prepregs and fibres	Low	Qualified			Restricted to Legacy Programs

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QVA-Z10-46-18 Chapter 4.3.2 and 4.3.3	Image analytical process for determination of the fibre, resin and pore contents of laminate specimens	High	Qualified		ME07309 63	Restricted to Legacy Programs
QVA-Z10-46-20	Determination of resin content of prepregs	Low	Qualified			Restricted to Legacy Programs
Z_Comp. spec. machining	Composite specimen machining / cutting / tabbing	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.