

COMPOSITES

Composites are routinely used in the modern Aerospace Industry as a means of improving fuel efficiency (reduced weight), providing greater impact resistance (impact with birds, hail, etc.), significantly improved corrosion resistance (eliminating galvanic corrosion), improved fatigue life, and for special applications (space vehicles) heat resistance. Composite materials play a significant role in current and future aerospace components. They allow greater flexibility in engineering design, performance and safety since composite materials can be tailored for a specific application.

Audit criteria (AC7118) and the Composites (COMP) Task Group were created in 2004 in response to increasing use of composites in the aerospace industry. Today, over 200 audits per year are conducted for Composites, with approximately 294 Suppliers currently holding Composites Accreditation.

BUSINESS BENEFITS

- Reduced costs associated with product malfunction, returns, complaints and equipment failure
- Reduced reputational damage and impact on credibility and trust in the industry
- Customer attrition due to inability to satisfy requirements
- Improved on-time delivery
- Improved control of supply chain
- Mitigated in-service risk of product failure
- Reduced scrap and rework
- Improved product quality
- Going from reactive to preventative change

TECHNICAL BENEFITS

Development/Maintenance of robust systems required to ensure compliance with customer/specification requirements

- Maintenance of material and environmental control
- Provide effective process control
- Personnel training and dependable quality
- Reduction in the OEM audits of suppliers

INDUSTRY SUPPORT

COMP Subscribers

- Aerojet Rocketdyne
- Airbus Group
 - Airbus*
 - Airbus Canada*
 - Airbus Defense & Space*
 - Airbus Helicopters*
 - Premium Aerotec
- BAE Systems (Operations)-Air*
- Ball Aerospace
- The Boeing Company*
- Bombardier, Inc.*
- COMAC
- Dehavilland*
- Embraer SA*
- General Atomics
- GE Aviation*
- GKN Aerospace Filton
- Gulfstream Aerospace*
- Honeywell Aerospace*
- Israel Aerospace Industries*
- Leonardo Helicopters*
- Leonardo Divisione Velivoli*
- Lockheed Martin Corporation
 - Sikorsky*
- MBDA UK
- Northrop Grumman Corporation*
- Ogden Air Logistics Complex
- Raytheon Technologies
 - Collins Aerospace (Goodrich)*
 - Collins Aerospace (Hamilton Sundstrand)
 - Collins Aerospace (Rockwell Collins)*
 - Pratt & Whitney
 - Pratt & Whitney Canada
 - Raytheon Intelligence & Space
 - Raytheon Missiles & Defense
- Rolls Royce Corp and PLC*
- SAFRAN Group*
 - SAFRAN Aerosystems Plaisir*
- Singapore Technologies Aerospace
- Sonaca*
- Spirit*
 - Short Brothers
- Textron Inc.
 - Bell Helicopter
 - Textron Aviation*

(* mandates)

The COMP Task Group is also supported by several Suppliers as Voting Members and Task Group participants.

AUDIT CRITERIA

AC7118 Nadcap Audit Criteria for Composites

The Composites Task Group scope of accreditation:

- Compression Molding (CMP)
- Core Processing (CP)
- Kitting Service (KSP)
- Liquid Resin Processing (LRP)
- Metal Bond (MB)
- Prepreg/Adhesive Bonding/Resin Film Infusion (PAR)

With:

- NC Ply Cutting (CP, KSP, LRP, MB or PAR)
- Complex Core Processing (CP)
- Automated Fiber Placement (PAR)
- Automated Tape Lay-up (PAR)
- Filament Winding (PAR)
- Hot Drape Forming (PAR)
- Structural Adhesive Bonding (PAR)

Including associated testing (Mechanical Testing, Physical Testing, Thermal Analysis)

COMMON INDUSTRY ISSUES

- The manufacturing and/or inspection record has insufficient detail to produce the part
- Thermocouples are incorrectly placed, per customer or Auditee requirements
- Curing parameters (e.g. heating and cooling ramp rates and holds, pressure, vacuum, time, etc.) are not monitored, recorded and verified, per customer requirements
- Work instructions do not identify in-process/verification points when verification of conformance cannot be performed at later stages of realization, per customer requirements
- The part is not bagged prior to cure, per customer or internal requirements

USA / International Headquarters

Telephone: +1 724 772 1616

Europe, Middle East and Africa

Telephone: +44 (0) 870 350 5011

Asia Office (China)

Telephone: +86 10 6463 6008

Asia Office (Japan)

Telephone: +81 80-6911-1154



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NadcapInfo@p-r-i.org