

CACRC Repair Material Task Group

Repair Material Task Group

Status Report

***May
2007***

Amsterdam

CACRC Repair Material Task Group

Membership

Chairman: Ana Rodriguez Airbus

Members: Paul Wittman Middle River Aircraft Systems

Larry Sullivan Goodrich

Marcos Maciel Embraer

Tom May Boeing (Seattle)

David Swartz FAA

Consultant:

Gerard Bonnar Boeing (Huntington Beach)

Participants (this meeting):

John C. Coles Boeing (Seattle)

Arne Lewis Boeing (Seattle)

Adam Sawicki Boeing (Philadelphia)

Michael Borgman Spirit (Wichita)

Rick Xu Lufthansa Technik (China)

Pat Brooks Hexcel

Pauline de Cuttoli Hexcel

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Since the RMTG meeting in November 2006 (Cincinnati)

- *Updated AMS 2980 (Carbon Fiber Fabric and Epoxy Resin Wet Lay-Up Repair Material) and PRI-QPL-AMS 2980 have been published and are available in*

SAE web site: www.sae.org

PRI web site: www.eAuditNet.com

- *Some minor errors found in Parts 1 and 3*
 - *Coordination with SAE to determine method of how these will be corrected.*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *Released AMS 2980 contains the following parts:*
 - *AMS 2980A Introduction*
 - *AMS 2980-1A General Requirements*
 - *AMS 2980-2A Qualification Test Program*
 - *AMS 2980-3A Purchasing Specification - Fabric*
 - *AMS 2980-4A Purchasing Specification - Resin*
 - *AMS 2980-5 Requirements to be Met by the Qualified Materials According to AMS 2980-1A and AMS 2980-2A*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *PRI-QPL-AMS 2980 lists the qualified material combination:*
 - *Resin EPOCAST 52 A/B (Huntsman)*
 - *Carbon fibre fabric, plain weave, 193 g/m²: G0904 D 1070 TCT (Hexcel Reinforcements)*
 - *Includes the APPENDIX to PRI-QPL-AMS-2980. It contains the requirements for batch release testing.*
 - *FAA (Dave Swartz) is currently drafting a letter providing FAA acceptance of the data.*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *AMS 2950 (Adhesive paste for core restoration) completed 2nd balloting process and has been approved. Now it has gone to the Aerospace Council for balloting.*
- *AMS 2950 contains the following parts:*
 - *AMS 2950 Introduction*
 - *AMS 2950-1 General Requirements and Qualification Test Program*

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Since the RMTG meeting in November 2006 (Cincinnati)

- *Updating AMS 3970 (Carbon Fabric Repair Prepreg Material)*
 - *Ballot for Rev B in progress:*
 - *AMS 3970B Introduction*
 - *AMS 3970-1B General Requirements*
 - *AMS 3970-2B Qualification Test Program*
 - *AMS 3970-3B Purchasing Specification for Carbon Prepreg*
 - *AMS 3970-4B Purchasing Specification for Film Adhesive*
 - *AMS 3970-5 Purchasing Specification for Non-Structural Glass Prepreg*

PLEASE, VOTE !!!

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Since the RMTG meeting in November 2006 (Cincinnati)

- *Updating AMS 3970 (Carbon Fabric Repair Prepreg Material)*
 - *The two remaining documents*
 - *AMS 3970-6 Material Specification Carbon Fiber Reinforced Epoxy Prepreg for Repair*
 - *IPS or Appendix 1 to PRI QPL to AMS 3970*
- are in progress and will be finished when the qualifications are completed:*
- *Carbon prepreg: the Hexcel Bridge Qualification + additional testing to address M20 solvent change*
 - *Adhesive film: the Henkel Qualification for Hysol EA 9695 .050 psf NW*
 - *Non-structural glass prepreg: the Hexcel Qualification*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *First materials qualification for AMS 3970 is in progress*
 - *Hexcel M20 carbon prepreg (Plain Weave, 193g/m², 40% resin content, HTA standard modulus fiber):*
 - *Previous data from Hexcel/DMS/RMS/AIMS has been combined to define Part 6 requirements (in final review).*
 - *Details of the additional tests have been set with the supplier. These tests results will be incorporated into the Part 6 requirements.*
 - *Re-qualification tests (solvent change) was proposed by the supplier and a counterproposal (some additional testing) was presented by the RMTG at the meeting in Cincinnati. Agreement has been reached and tests are in progress*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *First materials qualification for AMS 3970 is in progress*
 - *Hexcel M20 carbon prepreg (Plain Weave, 193g/m², 40% resin content, HTA standard modulus fiber):*
 - *The manufacture process of the prepreg with the new solvent has been audited (Boeing on behalf of the CACRC- QPG)*
 - *Panel and specimen manufacture is in progress*
 - *Completion is still planned for third quarter 2007*
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Since the RMTG meeting in November 2006 (Cincinnati)

- *First materials qualification for AMS 3970 is in progress*
 - *Hexcel M20 glass prepreg (120 style):*
 - *Pre-existing database is to be analyzed and first proposal for part 6 requirements is to be made.*
 - *If the product is also affected by the solvent change, the supplier will propose re-qualification tests.*
 - *Completion is planned for first quarter 2007.*
 - *Henkel Hysol EA 9695 .050 psf NW (250 g/m²)*
 - *Pre-existing database has been analyzed and first proposal for part 6 requirements has been made (in final review).*
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CACRC Repair Material Task Group

● Performance Review Institute (PRI) Communications

– Met with PRI at Manassas CACRC Meeting,

– Subsequent presentations with PRI

- November 2004: Outlined proposal with AMS2980***

Became an official Qualified Product Group (QPG)

- May 2005: QPMC Meeting - Updated Status of Task Group***
- November 2005: QPMC Meeting - Updated Status of Task Group***
- May 2006: Approval of the PRI-QPL-AMS-2980***
- June 2006: QPMC Meeting - Updated Status of Task Group***
- December 2006: QPMC Meeting - Updated Status of Task Group***
- May 2007: Next scheduled meeting***

QPMC: Qualified Product Management Council

CACRC Repair Material Task Group

Future Actions:

- *Carry on with the qualification program for M20 and EA 9695 to have it completed in the **third quarter** of 2007:*
 - *Supplier Technical Support*
 - *Test Results Review*
 - *PRI Coordination*
 - *Determine Re-Qualification Testing Requirements if relocation of resin filming equipment takes place.*
 - *Possibility to combine this re-qualification with the implementation of a second source for the adhesive*
 - *Finalize AMS 3970-6 and Appendix to PRI-QPL-AMS-3970 when all results are available.*
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Future Actions:

- *AMS XXXX (Glass prepreg for structural application)*
 - *Sponsor agreed: Airbus*
 - *Approach: Reduced qualification program to facilitate the application of multiple candidate suppliers*
 - *Candidate materials: Preliminary discussion has been initiated. The options are: 8HS (297 g/m²) or 4HS (105 g/m²) glass reinforcements*
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Future Actions:

- *AMS 2960 (Glass wet lay up)*
 - *No candidates for qualification identified*
 - *Is there a demand?*

 - *Consider request for new specification for a uni-weave or tape prepreg repair material specification to support reinforced tape and NCF designs*
 - *Is there a demand? Is there a chance for bonded repairs in solid laminates?*
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