



## 1. SCOPE:

This document (Technical Specification) gives information about qualification rules and the relation between the different specification parts involved, such as Technical Specification (TS), Material Specification (MS), and Purchasing Specification (PS). The link to material qualification and qualified products is presented.

### 1.1 Field of Application:

This document is only applicable to carbon fiber fabric materials and epoxy or modified epoxy laminating resins used for wet lay-up repair of carbon fiber composite structures.

## 2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

### 2.1 PRI Publications:

Available from Performance Review Institute, 161 Thornhill Road, Warrendale PA 15086-7527 or [www.pri-network.org](http://www.pri-network.org).

PD 2000 Governance and administration of an industry managed product qualification program.

PD 2001 Manufacturer request for product approval and qualification process.

PRI QPL AMS 2980 Qualified product list of AMS 2980.

## 3. MATERIAL QUALIFICATION:

### 3.1 Organizations Involved:

CACRC-QPG (Commercial Aircraft Composite Repair Committee-Qualified Product Group) is a mandated body designated by the PRI (Performance Review Institute) Qualified Product Management Council (QPMC) in accordance with PRI PD 2000.

The members of the CACRC QPG are the members of the CACRC RMTG (Repair Materials Task Group).

The CACRC QPG operates in accordance with PD2000.

Material manufacturer - The manufacturer that produces the end product to be tested in the qualification program, i.e. the fiber manufacturer, the weaver and the resin manufacturer. They shall follow the application process specified in PD2001.

OEM - Original Equipment Manufacturer, certified by airworthiness authorities.

### 3.2 Qualification Rules:

- 3.2.1 Organization: Material qualification in accordance with this document (TS), review of qualification results, approval, reapproval, and recertification of qualification for QPL listing shall be in accordance with PD 2000. a. Screening and qualification testing is the responsibility of the material manufacturer.

In addition to the qualification program, the OEM may require additional design-related testing before the qualified material combination can be approved for repair of carbon fiber composite structures. This additional testing is the responsibility of the material manufacturer unless otherwise agreed with OEM involved.

- 3.2.2 Technical: In accordance with the requirements of this TS the qualification rules are:

- a. The fiber source, woven fabric source and resin system source shall be qualified as a unique composite material combination.
- b. After successful qualification the composite material combination shall be listed in the PRI QPL AMS 2980.
- c. Any other combinations of fiber, fabric and resin not mentioned in the PRI QPL AMS 2980 are not qualified.

For qualification, four important items shall be completed:

- a. Audit of supplier in accordance with ISO 9000 or equivalent
- b. Reporting of the material manufacturing process (Process Control Document)
- c. Testing of the material performance (qualification program)
- d. Specifying production quality control and batch release requirements

## 4. FORMAT OF THE DOCUMENT:

The Technical Specification system is illustrated in Figure 1 and consists of the following:

### 4.1 Technical Specification:

- a. The TS specifies all requirements for screening and qualification for base materials and the material combinations.
- b. AMS 2980 - Introduction - gives an explanation about the aim of this TS system, the relation between the specification parts involved and qualified products.
- c. AMS 2980/1 - General Requirements - specifies the general requirements. It gives the requirements and test methods for qualification of a fiber, fabric and resin as well as that for the material combination.
- d. AMS 2980/2 - Qualification Program - specifies the material qualification program for the base materials as well as the material combination.

#### 4.1 (Continued):

The purchasing specifications (PS) are part of the TS and give specific information about the batch release and delivery requirements for the base materials:

AMS2980/3 TS-PS Carbon Fiber Fabric specifies the requirements for the carbon fiber and fabric material.

AMS2980/4 TS-PS Resin specifies the requirements for resin systems.

#### 4.2 Material Specification:

AMS 2980/5: The MS gives, for a certain material group, the material requirements with regard to the properties of the base materials as well as the material combination for screening and qualification.

#### 4.3 PRI QPL AMS 2980

The PRI QPL AMS 2980 lists the qualified material combinations. A material combination originates from one carbon fiber manufacturer, one fabric source and one epoxy resin manufacturer.

#### 4.4 Individual Product Sheet:

The IPS lists the batch release requirements for the fabric and the resin of each combination . The IPS is an appendix of the QPL.