



161 Thorn Hill Road
Warrendale, PA 15086-7527

PROGRAM DOCUMENT

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AEROSPACE QUALITY ASSURANCE, PRODUCT STANDARDS,
QUALIFICATION PROCEDURE, SEALANTS

0. INTRODUCTION

It is essential that products defined by Industry Standards conform to the requirements of these Standards, and that the quality of the products be consistently maintained. To this effect an Industry consensus-based product qualification system has been established. The qualification system is based on:

- The approval of the manufacturer's quality system.
- The qualification of the product according to the procedure defined in this standard.

This industry-managed product qualification program is administered by the Performance Review Institute.

1. SCOPE

This Program Document (PD) prescribes the qualification procedure supporting aerospace product standards as adhered to by the G-9 Qualified Products Group (QPG).

2. REFERENCES

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| AC7200/1 | Nadcap Audit and Inspection Procedures and Checklists for the Sealant Manufacturers Accreditation Program |
| AS5127/1 | Aerospace Standard Test Methods for Aerospace Sealants Two-Component Synthetic Rubber Compounds |
| AS9100 | Quality Management Systems – Requirements for Aviation, Space and Defense Organizations |
| PRI PD2000 | Procedures for an Industry Managed Product Qualification Process |

PRI operating procedures provide that "This report is published by PRI to advance the state of technical, engineering, and quality sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

PRI invites your written comments and suggestions.

PRI PD2001 Qualified Product Management Council Procedures for Qualified Product Groups

3.0 DEFINITIONS

3.1 QUALIFIED MANUFACTURER: A qualified manufacturer is one who is listed on the Nadcap QML for being in compliance with AC7200/1.

3.2 MANDATED BODY FOR AEROSPACE SEALANTS: A mandated body is one designated by the PRI Qualified Product Management Council (QPMC) in accordance with PRI PD2000. This body is responsible for assessing whether a manufacturer's products comply with the relevant standards and specifications. The Mandated Body for Aerospace Sealants is known as a Qualified Products Group G-9 QPG and is composed of members from the Original Equipment Manufacturers (OEMs) and Government agencies.

3.3 Product Qualification

3.3.1 Qualified Products List:

A Qualified Product List (QPL) lists products that have passed the test requirements in the applicable procurement standard that requires product qualification. The Qualified Products Listing, is maintained by PRI, and is available at www.eAuditnet.org.

3.4 Original Equipment Manufacturer (OEM):

An Original Equipment Manufacturer is a manufacturer of an end item "system" such as an airframe or engine.

3.5 User:

A user is an organization purchasing a specific product to be utilized within an assembly, part, or finished product; a purchaser of an item containing the specific product; or a representative of a government agency.

3.6 Verification of Testing:

Verification of Testing is the witnessing of qualification testing and inspections by independent PRI, Government or user personnel to verify qualification tests performed at a manufacturer.

3.7 Witnessing

The following guidelines shall be used to verify qualification testing:

- All test result numbers for tests except for peel will be physically witnessed.
For peel tests, a minimum of two panels will be physically witnessed and the remainder of the peel tests will be verified using normal surveillance techniques (ref. AC 7200/1A)

- The PRI auditor has the option of physically witnessing specimen test preparation or any other aspect of the qualification/requalification testing based on the auditor's experience and past history with the supplier.

3.8 Standards Development Organization (SDO):

A Standards Development Organization is an industry committee organization or government agency established to prepare and maintain standards of performance or design.

3.9 Acronyms:

AMS	Aerospace Material Specification
AS	Aerospace Standard
OEM	Original Equipment Manufacturer
PD	Program Document
PRI	Performance Research Institute
QML	Qualified Manufactures List
QPG	Qualified Product Group
QPL	Qualified Product List
QPMC	Qualified Product Management Council
SDO	Standard Development Organization

3.10 Conformance Tests:

The conformance tests are defined as the Initial Acceptance Tests of the applicable AMS specification.

4. PROCEDURES

4.1 Compliance with PRI PD2000

The procedure of the G-9 QPG shall be in compliance with PRI PD2000.

4.2 Manufacturer Request for QPL, QML

4.2.1 Requirements for Product Approval

- Manufacturer shall be listed on the Nadcap QML for AC7200/1 (www.eAuditNet.org).
- G-9 QPG shall approve the qualification data and/or reports.

4.2.2 Request for Qualification Test Plan Approval

The manufacturer wanting its products to be qualified can submit a qualification test plan request for approval to PRI (see below). A test plan is not required if the qualification does not deviate from the applicable AMS specification and this PD. When test plans are

submitted, the manufacturer shall specifically request approval of its qualification test program, and of the manufacturing plant location proposed to achieve this program.

The test data that is submitted shall be within two years of the date of G-9 QPG approval.

If deemed necessary, the manufacturer shall provide the manufacturing and inspection requirements of the concerned products to the G-9 QPG. It shall also have access to the record of the inspections carried out at the appropriate stage of manufacture.

The products tested shall be manufactured by the applicant manufacturer according to the manufacturing and inspection requirements applicable for production. If deemed necessary, the manufacturer shall provide a schedule for qualification testing including verification of testing.

The request for qualification test plan approval shall be submitted to:

Performance Review Institute (PRI)
161 Thorn Hill Road
Warrendale, PA 15086

ATTN: PRI-QPL Program

4.2.3 G-9 QPG Review for Qualification Test Plan

When requested, the manufacturer's request for qualification test plan approval shall be evaluated and replied to by the AMS G-9 QPG within thirty working days. Where approval cannot be granted, the reply shall clearly and specifically identify the basis for the disapproval including any deficiencies in documentation, the proposed test plan, and/or identified manufacturing and process controls.

4.3 Initial Qualification Testing – Sealing Compound

4.3.1 Qualification of Types

If applicable to the AMS specification, each Type of material shall be qualified separately.

4.3.2 Qualification of the First Class of Product

Qualification test data for the first Class of product tested (usually Class B-2) shall come from one of the test laboratories listed below. A complete set of data from at least one production batch of material shall come from one test lab unless approved by the G-9 QPG. Any variation of the qualification other than a Class B product must be previously approved by the G-9 QPG.

- a. The University of Dayton Research Institute (UDRI)
- b. The Naval Air Warfare Center (NAWC) – Patuxent River
- c. Lockheed – Martin Aeronautics – Fort Worth

- d. Lockheed – Martin Aeronautics – Marietta
- e. Lockheed – Martin Aeronautics – Palmdale
- f. Northrop-Grumman – El Segundo
- g. Boeing – Seattle
- h. Boeing – St. Louis
- i. Boeing – Long Beach
- j. Cessna – Wichita

Test Laboratories can be added by sending an application to PRI in 4.2.2. The application shall include AS5127/1 lab testing capabilities. The G-9 QPG shall be responsible to review the application.

4.3.3 Qualification of the Subsequent Classes

Qualification test data of subsequent Classes of material shall come from one of the test laboratories listed in 4.3.2. Unless otherwise specified in the procurement specification, testing shall consist of all quality conformance tests listed in the specification and all peel adhesion tests listed in the specification. Any unique qualification tests not included with the first Class of product tests per 4.3.2 shall also be tested.

4.3.4 Qualification of Subsequent Work-lives of the Same Class

Qualification test data of subsequent work-lives of the same Class of material shall come from one of the test laboratories listed in 4.3.2 or from the manufacturer's laboratory. If the data comes from the manufacturer's laboratory, a PRI Auditor shall verify it. Unless otherwise specified in the procurement specification, testing shall consist of all quality conformance tests listed in the specification. Any unique qualification tests not included with the first Class of product tests per 4.3.2 or the subsequent Classes test per 4.3.3 shall also be tested.

4.4. Requalification Testing – Sealing Compound

4.4.1 Requalification of Types

If applicable to the AMS specification, each Type of material shall be qualified separately.

4.4.2 Requalification of the First Class of Product

Requalification test data for the first Class of product tested (usually Class B-2) shall come from one of the test laboratories 4.3.2. A complete set of data from at least one production batch of material shall come from one test lab unless approved by the G-

9 QPG. Any variation of the qualification other than a Class B product must be previously approved by the G-9 QPG.

4.4.3. Requalification of Subsequent Classes

Requalification test data of subsequent classes of material shall come from one of the test laboratories listed in 4.3.2 or from the manufacturer's laboratory. If the data comes from the manufacturer's laboratory, a PRI Auditor shall verify it. Unless otherwise specified in the procurement specification, testing shall consist of all quality conformance tests listed in the specification and all peel adhesion tests listed in the specification. Any unique qualification tests not included with the first Class of product tests per 4.4.2 shall also be tested.

4.4.4 Requalification of Subsequent Work-lives of the Same Class

Requalification test data of subsequent work-lives of the same class of material shall come from one of the test laboratories listed in 4.3.2 or from the manufacturer's laboratory. If the data comes from the manufacturer's laboratory, a PRI Auditor shall verify it. Unless otherwise specified in the procurement specification testing shall consist of all quality conformance tests listed in the specification. Any unique qualification tests not included with the first Class of product tests per 4.4.2 or the subsequent Classes tests per 4.4.3 shall also be tested.

4.5 Qualifications and Requalifications – Materials Other Than Sealing Compound

Qualification or requalification test data for the product shall come from one of the test laboratories listed in 4.3.2. A complete set of data from at least one production batch of material shall come from one test lab unless approved by the G-9 QPG.

4.6 PRI Review

At the end of the qualification test program, the manufacturer shall be responsible for supplying the detailed reports and/or test data to PRI for review. PRI shall then forward the product approval request to the Mandated Body, the AMS G-9 QPG.

4.7 G-9 QPG Review and Approval

The G-9 QPG shall be responsible to review the test report and/or test data in accordance with the operating procedures designated in PD2000, PD2001, and this PD within thirty working days. The location of the manufacturing plant shall also be submitted. Where approval cannot be granted, the reply shall clearly and specifically identify the basis for the disapproval including any deficiencies in documentation, and/or the qualification test data. The reply may also request corrective actions to be taken in the event the submitted test data does not comply with the requirements of the applicable standard(s).

4.8 QPMC Approval

When necessary, the QPMC shall review the G-9 QPG decision and recommendation. In the absence of a request by the QPMC for review of the G-9 QPG decision, the G-9

QPG decision shall be final, and PRI shall grant the Qualified Products Listing for the products concerned on behalf of the QPMC, unless basic PRI PD2000 criteria have not been met.

4.9 Approved QPL Listing Requirements

This Qualification Products Listing shall contain the following information:

- a. Reference to the SDO standards defining the product;
- b. Name of manufacturer and place of manufacture;
- c. Product designation;
- d. Type, Class, and Work-life of the product, if applicable;
- e. Type, asset number, and capacity of mixer used, if applicable (not included on QPL listing)
- f. Number and issue date of the certificate;
- g. Expiration date of the qualification.

4.10 Additional Responsibilities

a. OEM/User Responsibility

The OEM or user should review the qualified product acceptance and the rules to which they conformed are satisfactory, taking into account contractual commitments and/or legal obligations. If this is not satisfactory, the user may conduct or have conducted complimentary evaluation judged necessary.

b. Supplier Responsibility

Inclusion of a product on the QPL does not relieve the supplier of its contractual obligations to deliver products that comply with all specification requirements.

c. Responsibility for Quality Assurance

Inclusion of a product on the QPL does not constitute a waiver of any requirement for inspection, for process control, or for maintenance of quality control procedures during production. It also does not in any way relieve the OEM or user of its contractual obligation to ensure that the delivered products comply with the specification requirements.

4.11 Validity Period of Qualification

The Product Qualification shall be valid for a maximum of five years, which shall be typically 5 years from the previous original expiration date or the end date of the

qualification testing period, whichever is later. Rework of failed tests shall not be included in the material testing period. As a courtesy, fifteen months before the qualification expires, PRI shall notify the manufacturer of the QPL expiration date and provide the requalification test requirements. Under extraordinary circumstances, an extension to the expiration date can be granted by the G-9 QPG. The G-9 QPG chairman has the authority to grant a one time one-month extension without consulting the G-9 QPG.

4.12 Grandfathering Previous Military or OEM Specification Approvals

For grandfathering of military specification QPLs or OEM-user QPLs, qualification shall be granted based upon the letter granting qualification or the listing on the QPL by the military or OEM qualifying agency (see 4.3.2). Requalification shall be required within 18 months of the PRI QPL list date.

4.13 In-Service Problem Reporting

Users of qualified products should report failures, discrepancies, and quality problems to PRI. PRI shall notify the G-9 QPG and the manufacturer of the problem. The manufacturer shall be required to respond to the notification in a written reply describing the source of the problem. The G-9 QPG shall review the information and can recommend a course of action to resolve the problem. In the case of repetitive complaints from the users of PRI on the performance of a qualified product, the G-9 QPG shall request corrective action from the manufacturer and proof that the corrective action resolved the quality problems. Corrective action may include a PRI audit at the place of manufacture. After consideration of the corrective action and the audit report, if required by the QPG, PRI shall notify the manufacturer of any further necessary action. The SAE G-9 QPG reserves the right to delist the product from the PRI-QPL.

4.14 Manufacturer Process Changes to be Reported to PRI

The manufacturer shall inform PRI of any proposed changes to the following:

- a. The loss of an AS9100 quality certification;
- b. Formulation change outside of current processing parameters;
- c. Raw materials that are not equivalent outside of current processing parameters;
- d. Basic manufacturing process changes outside of current processing parameters to mix times, temperature, pressures, or other identified operations and process controls;
- e. Manufacturing equipment and machinery. This does not include normal replacement of wear items or addition of new machines of brand, type and model already in use at the approved facility;

- f. Movement of manufacturing facilities, machinery, and personnel to a new location. This does not include minor upgrades to operations and machinery within the manufacturing building;
- g. Business changes such as mergers, acquisitions by other companies, plant closings, upper management changes, and discontinuation of products.

PRI shall consult with the G-9 QPG on the possible implication of the changes and determine a course of action for the manufacturer. As a minimum, PRI will retain the information for future PRI audits.

4.15 PRI Confidentiality Requirement

All information provided to PRI, the G-9 QPG, and the QPMC shall be treated in accordance with the confidentiality requirements of PRI.

This document is maintained by the G-9 QPG