SAE Aerospace
An SAE International Group

AEROSPACE RECOMMENDED PRACTICE

SAE ARP5448/4

Issued 2002-06
Reaffirmed 2010-06

Plain Bearing Bond Integrity - Peelable Woven Fabric PTFE Liners

1. SCOPE:

1.1 Purpose:

This test method outlines a recommended procedure for performing bond integrity tests of bonded peelable woven fabric reinforced polytetrafluoroethylene (PTFE) liners, hereafter referred to within this document as "PTFE liner" or "liner". The data from these tests shall be used to determine if the product meets the "bond integrity" requirements of the applicable specifications.

1.2 Classification:

Bearings covered by this test method shall be plain spherical, track roller, journal or rod end bearing with PTFE liners.

2. DEFINITIONS:

2.1 BOND INTEGRITY:

Bond integrity shall be defined as those characteristics of a PTFE liner bonded or attached to a substrate which affect bond quality and can be measured or determined by specific defined procedure.

2.2 VOID:

A void shall be defined as an area where the metal substrate is directly visible after peeling of the liner with no visible adhesive.

2.3 UNBONDED AREA:

An unbonded area shall be defined as an area where the adhesive remaining on the metal substrate is smooth and shiny indicating a lack of bonding pressure.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

3. GENERAL REQUIREMENTS:

3.1 Test Apparatus:

3.1.1 Test Machine: The test machine or device used may be of individual design but shall be capable of peeling the liner from the substrate at a controlled rate and providing the results. The test machine shall be such that the liner can be gripped and peeled at 140° ± 40° to the bonded surface. A device such as a calibrated spring scale is acceptable for this test method.

3.2 Test Specimen:

3.2.1 Description: The quantity and configuration of the test specimen shall be as specified by the applicable specification or purchase order.

3.2.2 Disposition After Test: The test specimen shall be held for a minimum period of 6 months for examination by the customer, if requested.

4. DETAILED REQUIREMENTS:

4.1 Peel:

The liner shall be initially peeled away from the metal substrate using a blade or scribe to initiate the peel. The liner edge peeled back shall be gripped such that the liner can then be peeled from the substrate (see Figures 1 and 2). The rate of peel shall be approximately 0.5 to 1.0 inch per minute. The peel strength value in pounds shall be recorded. Where possible, the peel shall be conducted on the entire width of the bonded liner. Where this is not practical, the liner shall be cut through to the metal substrate with a minimum width of 0.5 inch and peeled as previously described.

4.2 Evaluation:

After the liner has been completely peeled from the metal substrate, the adhesive bond appearance shall be evaluated for voids and unbonded areas as required by the applicable specification.

5. NOTES:

5.1 Intended Use:

This test method is intended to evaluate bond integrity of PTFE lined bearings.