

INCH-POUND

MIL-R-83485(USAF)  
 Amendment 3  
11 March 1991  
 SUPERSEDING  
 Amendment 2  
 16 February 1990

**MILITARY SPECIFICATION**  
**RUBBER, FLUOROCARBON ELASTOMER, IMPROVED PERFORMANCE**  
**AT LOW TEMPERATURES**

This amendment forms a part of MIL-R-83485(USAF) dated 8 September 1976, and is approved for use by the Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

**PAGE 3**

\* 2.2, add:

"SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

AMS 3021                      Reference Fluid for Testing Di-Ester  
                                       (Polyol) Resistant Material

AS 568                        Aerospace Standard - Uniform Dash Numbering System for  
                                       O-Rings

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)"

3.1, delete and substitute:

"3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3. The approval of the first article sample authorizes the commencement of production, but does not relieve the supplier of responsibility for compliance with all applicable provisions of this specification. The first article sample shall be manufactured in the same facilities to be used for the manufacture of the production items."

AMSC N/A

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**PAGE 5**

- \* Table II, lines 7 and 8 from the bottom of the page, delete and substitute:

"After aging 70 hours at 347°F ± 5°F in accordance with AMS 3021 "

**PAGE 6**

- 4.1 delete and substitute:

**"4.1 Responsibility for inspection.** Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specifications where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

**"4.1.1 Responsibility for compliance.** All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspections, as part of manufacturing operations, is an acceptance practice to ascertain, conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material."

**PAGE 7**

- 4.3, title, delete and substitute: **"First article inspection"**

- 4 3.2. delete and substitute:

**"4.3.2 First article test.** "First article tests shall consist of all the tests specified in 4.6."

**PAGE 11**

- \* 4.5.1, delete and substitute

**"4.5.1 Control fluid** The control fluid used to conduct the oil aging in this specification shall be in accordance with AMS 3021. It consists of a MIL-L-7808 standard production base fluid plus 0.5 percent phenothiazine. New fluid shall be used for each aging test."

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- \* 4 6.3.1, line 1: Delete "392°F ± 5°F" and substitute "347°F ± 5°F".

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- \* 4 6.5.1 and 4.6.5.2, delete and substitute.

**"4.6.5.1 Air aged** Compression set shall be determined on specimens air aged for 70 hours at 75°F ± 5°F, on specimens air aged for 166 hours at 347°F ± 5°F and on specimens air aged 22 hours at 392°F ± 5°F. A single set of specimens shall be used for the 75°F and 392°F tests and two sets shall be used for the 347°F tests. . The test procedure shall be in accordance with ASTM D 395 for the 75°F and 392°F specimens and one set of the 347°F specimens. The second set of 347°F specimens shall cool for 18 hours prior to removal from the test fixture. The usual 30 minute waiting period before taking the final thickness measurement shall be used.d.

**"4.6.5.2 Oil aged** Compression set shall be determined on two sets of specimens aged 70 hours at 347°F ± 5°F immersed in fluid conforming to AMS 3021. The compression set plates for testing type I material shall be approximately 0.375 inch by 2 inches by 4 inches. There shall be six 1/4-inch bolt holes, one on each corner and one located in the middle of each 4-inch edge and on the center line of the corner holes. There shall also be 1/4-inch holes through the middle of each half of the plates to allow fluid to be in contact with the inside diameter of the O-rings. The compression set plates for type I compression seals other than O-rings and type II material shall be in accordance with ASTM D 395. The original thickness of the specimens shall be measured and the test fixtures shall be assembled using two test specimens. The specimens shall be compressed 25 percent The test fixture shall be placed in a 1-liter stainless steel beaker and 800 milliliters of fluid conforming to AMS 3021 shall be added to the beaker. The beaker shall be fitted with a suitable vented stainless steel cap. The cap shall be sealed with an O-ring conforming to type I, class 1 of this specification (size-240, ARP 568 has been used). The beaker shall be placed in a suitable oven at 347°F ± 5°F with vent open. After the fluid has reached the test temperature (approximately 2 hours) the vent shall be closed and the beaker left in the oven for a total aging time of 70 hours. At the end of the aging time, the set of specimens shall be removed from the compression plates immediately and allowed to cool on paper towels for 30 minutes. Excess fluid shall be blotted from the specimens with paper towels and the final thickness determined. The other set of specimens shall be allowed to cool in the fluid for 18 hours. The specimens shall be removed from the compression set plates and allowed to rest on paper towels for 30 minutes. The excess fluid shall be blotted from the specimens and the final thickness measurement made"

PAGE 14

Section 5, title: Delete and substitute "PACKAGING"

5 1, delete and substitute:

**"5 1 Preservation - Packaging** Preservation - Packaging shall be level A or C as specified (see 6 2) "

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5.3, line 4: Delete "219" and substitute "129".

PAGE 16

6.3, delete and substitute:

**"6.3 First article test.** Unless otherwise specified, the supplier is responsible for all first article tests required for each type and class of material furnished to this specification. A copy of the first article test report shall be furnished the Air Force Materials Laboratory, Attn: WL/MLSE, Wright-Patterson Air Force Base, Ohio 45433-6503. The first article tests need not be repeated for new orders or different parts provided the materials and processes have not been changed and a certified statement to this effect is furnished to the procuring activity. The waiving of the first article test will be strictly at the discretion of the procuring activity. Test results to previous revisions of this specification are not acceptable. First article tests will not be acceptable if they are more than 3 years old "

\* 6.4, delete.

6.5, add:

**"6.5 Changes from previous issue.** The margins of this amendment are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue."

Custodian:  
Air Force - 11

Preparing activity:  
Air Force - 11

Reviewer activities  
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