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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 7261B

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Submitted for recognition as an American National Standard

Superseding AMS 7261A

RINGS, SEALING, PHOSPHONITRILIC (FZ) FLUOROELASTOMER
High-Temperature-Fluid Resistant

1. SCOPE:

1.1 Form: This specification and its associated detail specifications cover phosphonitrilic (FZ) fluoroelastomers in the form of molded rings.

1.2 Application: Sealing rings for use in aircraft fuel and lubricating oil systems operating from -55° to +175°C (-67° to +347°F). The cross section of such rings is usually not over 0.275 inch (6.98 mm) in diameter or thickness.

1.3 Safety - Hazardous Materials: While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

2.1.1 Aerospace Material Specifications:

AMS 2817 - Packaging and Identification, Preformed Packings
AMS 3021 - Fluid, Reference, for Testing Di-Ester (Polyol) Resistant Materials

2.1.2 Aerospace Standards:

AS568 - Aerospace Size Standard for O-Rings
AS871 - Manufacturing and Inspection Standards for Preformed Packings (O-Rings)

2.1.3 Aerospace Information Report:

AIR851 - O-Ring Tension Testing Calculations

2.2 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 471 - Rubber Property - Effect of Liquids
ASTM D 1414 - Testing Rubber O-Rings
ASTM D 2240 - Rubber Property - Durometer Hardness

2.3 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

2.3.1 Military Standards:

MIL-STD-413 - Visual Inspection Guide for Rubber O-Rings

3. TECHNICAL REQUIREMENTS:

3.1 Detail Specifications: The requirements for a specific sealing ring shall consist of all requirements specified herein in addition to requirements specified in the applicable detail specification. In case of conflict between requirements of this basic specification and an applicable detail specification, requirements of the detail specification shall govern.

3.2 Material: Shall be a compound, based on a phosphonitrilic (FZ) fluoroelastomer, suitably cured to produce rings meeting the requirements of this specification and the applicable detail specification.

3.3 Properties: Rings shall conform to the requirements of the applicable detail specification; tests shall be performed on the rings supplied and in accordance with ASTM D 1414, insofar as practicable. If the rings are unsuitable for use as test samples, tests shall be performed on samples of identical composition and comparable cure as that of the end item, preferably a -214 O-ring. Calculations of tensile strength and elongation may be made in accordance with AIR851.

3.4 Quality: Rings, as received by purchaser, shall be uniform in quality and condition, smooth, as free from foreign materials as commercially practicable, and free from internal imperfections detrimental to usage of the rings. Surface imperfections shall be no greater than permitted by MIL-STD-413.

3.5 Sizes and Tolerances: Shall be as specified on the drawing. Inspection for conformance to dimensional requirements shall be made in accordance with AS871. Standard sixes are as shown in AS568.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of rings shall supply all samples Ø for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the rings conform to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for quality (3.4) and the following requirements of the applicable detail specification are acceptance tests and shall be performed on each lot:

Requirement	Paragraph Reference
Hardness, as received	3.2.1.1
Tensile Strength, as received	3.2.1.2
Elongation, as received	3.2.1.3
Specific Gravity, as received	3.2.1.4
Volume Change in fuel	3.2.2.4
Compression Set	3.2.5.1

4.2.2 Preproduction Tests: Tests for all technical requirements are preproduction tests and shall be performed prior to or on the initial shipment of rings to a purchaser, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction rings shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling and Testing: Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient rings shall be selected at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all rings of the same nominal size produced from the same batch of compound processed in one continuous series of operations and presented for vendor's inspection at one time but shall not exceed 1000 rings or 300 pounds (136 kg), whichever is the lesser mass. A lot may be packaged in smaller quantities and delivered under the basic lot approval provided lot identification is maintained.

4.3.1.2 A batch shall be the quantity of compound run through a mill or mixer at one time.

4.3.1.3 When a statistical sampling plan has been agreed upon by purchaser and Ø vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor. Tests, except hardness, shall be made on AS568-214 size rings; hardness tests shall be made on specimens meeting the requirements of ASTM D 2240.

4.4 Approval:

4.4.1 Sample rings shall be approved by purchaser before rings for production use are supplied, unless such approval be waived by purchaser. Results of tests on production rings shall be essentially equivalent to those on the approved sample rings.

4.4.2 Vendor shall establish, for each size of ring, parameters for the process control factors which will produce rings meeting the technical requirements of this specification. These shall constitute the approved procedures and shall be used for manufacturing production rings. If necessary to make any change in parameters for the process control factors, vendor shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample rings. Production rings incorporating the revised procedures shall not be shipped prior to receipt of reapproval.

4.4.2.1 Control factors for producing rings include, but are not limited to, the following:

Compound ingredients and proportions thereof within established limits
Sequence of mixing compound ingredients
Type of mixing equipment
Method and equipment for preparing preforms
Basic molding procedure (compression, transfer, injection)
Curing time and pressure; variations of ± 10% are permissible
Basic and minimum curing temperatures
Finishing methods
Methods of inspection

4.4.2.1.1 Any of the above process control factors for which parameters are considered proprietary by the vendor may be assigned a code designation. Each variation in such parameters shall be assigned a modified code designation.

4.5 Reports: The vendor of rings shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the rings conform to the other technical requirements. This report shall include the purchase order number, lot number, AMS 7261B and applicable detail specification number and its revision letter, vendor's compound number, part number, and quantity.