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Superseding AMS-R-7362

Nitrile Rubber, Synthetic, Solid, Sheet, Strip and Fabricated
Parts, Synthetic Oil Resistant

RATIONALE

To correct errors from the previous revision and update the specification references for the five year review.

NOTICE

The initial SAE publication of this document was taken directly from U.S. Military Standard MIL-R-7362D, Amendment 4. This SAE Standard may retain the same part numbers established by the original military document.

Any requirements associated with Qualified Products Lists (QPL) may continue to be mandatory for DoD contracts. Requirements relating to QPLs have not been adopted by the SAE for this standard and are not part of this SAE document.

1. SCOPE

1.1 This specification covers two types of synthetic rubber for use where resistance to diester synthetic oils is required. This material may not be suitable for use in polyol ester based turbine oils.

1.2 Classification

Synthetic rubber shall be of the following types, as specified (See 6.3):

Type I - O-rings

Type II - Molded parts (other than O-rings), sheets, strips, and extruded shapes

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.

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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS2817	Packing and Identification Preformed Packings
AMS3021	Fluid, Reference for Testing Di-Ester (Polyol) Resistant Material
AMS6345	Steel SAE 4130 Normalized or Otherwise Heat Treated
AMS7276	Rings, Sealing, Fluorocarbon Rubber High Temperature
AMS-QQ-A-250/4	Aluminum Alloy 2024, Plate and Sheet
ARP5316	Storage of Aerospace Elastomeric Seals
AS29561	Packings, Preformed, O-ring, Synthetic Lubricant Resistant
AS5752	Visual Inspection Standard for Elastomeric Sealing Elements Other than O-rings

2.2 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ANSI/ ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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2.3 ASME Publications

Available from American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900, Tel: 973-882-1170, www.asme.org.

ASME B46.1	Surface Texture (Surface Roughness, Waviness & Lay)
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2.4 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B 36	Brass Plate, Sheet, Strip and Rolled Bar
ASTM B 139	Phosphor Bronze: Bar, Rod, Shapes
ASTM D 297	Chemical Analysis of Rubber Products
ASTM D 395	Compression Set of Vulcanized Rubber
ASTM D 412	Tensile Testing of Vulcanized Rubber
ASTM D 471	Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids
ASTM D 573	Accelerated Aging of Vulcanized Rubber by the Oven Method
ASTM D 2240	Durometer Hardness
ASTM D 1329	Retraction at Lower Temperatures (TR Test)

ASTM D 1414 Tension Testing of Rubber O-Rings

ASTM D 1974 Standard Practice for Method of Closing, Sealing and Reinforcing Fiberboard Shipping Container

ASTM D 6880 Standard Specification for Wood Boxes

2.5 ISO Publications

Available from the International Organization for Standardization, 1, ch. De la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, Tel: +41 22 749 01 11, www.iso.org.

ISO 3601-3 Fluid Power Systems- O-rings - Part 3: Quality Acceptance Criteria

2.6 Uniform Classification Committee

Available from Uniform Classification Committee, 202 Chicago Union Station, Chicago, IL 60606.

Uniform Freight Classification Rules

2.7 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

A-A-1671 Tape, Gummed (Paper, Reinforced, Asphalt Laminated)

A-A-55057 Panels, Wood/ Wood Based: Construction and Decorative

MIL-PRF-6083 Hydraulic Fluid, Petroleum Base, for Preservation & Operations

MIL-PRF-7808 Lubricating Oil, Aircraft Turbine Engine, Synthetic Base

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-289 Visual Inspection Guide for Rubber Sheet Material

MIL-STD-298 Visual Inspection Guide for Rubber Extruded Goods

3. REQUIREMENTS

3.1 First Article

The synthetic rubber furnished under this specification shall be a product which has met the first article tests specified herein (See 4.3). First article tests are not necessarily required on all orders (See 6.4). If there are any changes in materials or manufacturing processes, new first article test are required.

3.2 Materials

The synthetic rubber shall be manufactured from compounds which are compatible with diester synthetic oils.

3.2.1 Corrosion and Adhesion

The materials shall not cause any corrosion nor shall it adhere to aluminum alloy, brass, or phosphor bronze, when tested as specified in 4.6.1. It shall not adhere to or cause more than slight corrosion of steel. Discoloration will not be cause for rejection.

3.3 Dimensions

3.3.1 Type I (O-rings)

Dimensions and tolerances of type I (O-rings) shall be as specified on AS29561 or in the contract (See 6.3).

3.3.2 Type II

3.3.2.1 Sheet and Strip

Unless otherwise specified, the width of the sheet material shall be 36 inch ± 1 and the tolerances on thickness shown in Table 1 shall apply. The width of strip material or shapes cut from sheet shall be as specified with tolerances of ± 5 percent. The thickness of strip material, other than shapes cut from sheet, shall be as specified with tolerances of ± 5 percent. The length shall be as specified with a tolerance of ± 1 percent.

TABLE 1 - THICKNESS TOLERANCES FOR SHEET

Nominal Thickness (inch)	Tolerances (inch)
0.031 and less	± 0.010
over 0.031 to 0.063 inclusive	± 0.012
over 0.063 to 0.125 inclusive	± 0.016
over 0.125 to 0.188 inclusive	± 0.020
over 0.188 to 0.375 inclusive	± 0.031
over 0.375 to 0.750 inclusive	± 0.047
over 0.750 to 1.000 inclusive	± 0.093
over 1.000	$\pm 10\%$

3.3.2.2 Molded Parts and Extruded Shapes

Dimension and tolerances shall be as specified on the drawing or in the contract (See 6.3).

3.4 Physical Properties

Physical properties of the synthetic rubber shall conform to Table 2.

TABLE 2 - PHYSICAL PROPERTIES

Property	Type I	Type II
Original:		
Tensile strength, psi, minimum	1200	1500
Ultimate elongation, percent minimum	250	250
Hardness, Shore "A", points	70 \pm 5	70 \pm 5
Temperature retraction 10% (TR-10), °F, maximum	-40	-40
Specific gravity	As determined	As Determined
Air aged - 70 hours at 257 °F \pm 2		
Tensile strength decrease, percent, maximum	20	20
Ultimate elongation decrease, percent, maximum	60	60
Hardness change, Shore "A", points	-0, +20	-0, +20
Oil aged - 70 hours at 257 °F \pm 2		
Tensile strength decrease, percent, maximum	50	50
Ultimate elongation decrease, percent, maximum	60	60
Hardness change, Shore "A", points	\pm 10	\pm 10
Volume change, percent	2 to 15	2 to 15
Cracking, diameter, inches, minimum (type I)	1.75	---
180° Flat bend (cracking) (type II)	---	Shall not crack
Temperature retraction 10% (TR-10), °F, maximum	-30	-30
Compression set, percent maximum	50	60
Air Aged - 22 hours at 257 °F \pm 2		
Compression Set, percent max		
Under 0.110 inch	60	40
Over 0.110 inch	55	

- 3.4.1 The permissible variations in physical properties during actual production from those values established in the preproduction tests shall be:

TABLE 3

Tensile strength, percent	\pm 15
Elongation, percent	\pm 20
Hardness, points	\pm 3
Specific gravity	\pm 0.02
Compression set	\pm 5 Units of percent
Volume change	\pm 2.5 Units of percent

Also, the original property values for tensile strength, elongation, and hardness shall meet the requirements listed in Table 2.

3.5 Age

Unless otherwise specified, the age limitations for the finished product shall conform to SAE-ARP5316.

3.6 Identification of Product

3.6.1 Type I (O-rings)

Temporary marking of O-rings for the manufacturer's identification shall be permitted at the time of manufacture. The temporary marking shall not, in any way, affect the properties of function of the O-ring.

3.6.2 Type II

3.6.2.1 Sheet and Strip

Unless otherwise specified in the contract or order, sheet material shall be marked to show the specification number, date of cure (by quarters, e.g., 2065), and the manufacturer's identification or compound number. The identification shall appear in rows of constantly recurring symbols from one end of the sheet to the other spaced approximately 5 inches apart. The manufacturer's identification or compound number shall appear immediately below the specification number. The symbol shall be clearly legible and not less than 3/8 inch high, and shall be applied by suitable means, using marking fluid that is not deleterious to the rubber. The marking shall not be obliterated by normal handling nor by the action of lubricating oil, aromatic fuel, or aliphatic fuel. Strip material shall also be marked in this manner providing the width of the material permits this. When the width does not permit this, the identification shall be marked on the containers in accordance with Section 5.

3.6.2.2 Molded Parts and Extruded Shapes

Where the size of the product permits, the identifying symbol shall be marked as indicated in 3.6.2.1. When the size does not permit marking the identification shall be marked on the containers in accordance with Section 5.

3.7 Workmanship

The rubber sheet strip and fabricated rubber parts shall be manufactured and processed in accordance with the requirements of this specification. They shall be free from blisters, wrinkles, holes, dents, scratches or other defects which will affect serviceability or appearance.

4. QUALITY ASSURANCE PROVISIONS

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 the 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.

4.2 Classification of Tests

The inspection and testing of the synthetic rubber shall be classified as:

4.2.1 Preproduction inspection (4.3)

4.2.2 Quality conformance inspection (4.4)

4.3 First Article Inspection

4.3.1 Samples

Samples for type I material shall be O-rings of 0.984 inch \pm 0.006 inside diameter with 0.139 inch \pm 0.004 cross-sectional diameter. Hardness shall be determined on specimens of sufficient dimensions to comply with ASTM D 2240. Samples for type II material shall be obtained from 6 inches by 6 inches by 0.075 inch platen sheets.

4.3.2 First Article Tests

First article tests shall consist of all the tests specified in 4.6 (See 6.4).

4.4 Quality Conformance Inspection

Sampling for inspection shall be in accordance with ANSI/ ASQ Z1.4, Level II, except where otherwise indicated. Quality conformance tests are required for all production batches of material (See 4.4.6).

4.4.1 Sampling for Inspection

4.4.1.1 Batch

A batch shall be the quantity of material compounded on a mill or mixer at one time.

4.4.1.2 Lot

A lot shall consist of all material of the same identify cured in the same production run, from the same batch, and submitted at the same time for inspection.

4.4.2 Samples for Quality Conformance Tests

When possible, the end item, or specimens cut from the end item, shall be used as the sample. If the items are unsuitable for use as test samples, tests shall be performed on samples of identical composition and state of cure as the end item.

4.4.3 Inspection of Materials and Components

In accordance with 4.1, the supplier is responsible for insuring that materials and components used were manufactured, tested, and inspected in accordance with referenced subsidiary specifications and standards to the extent specified, or if none, in accordance with this specification. In the event of conflict, this specification shall govern.

4.4.4 Inspection of the End Item

4.4.4.1 Examination of the End Item

Examination of the end item shall be made in accordance with the classification of defects, inspection levels, and acceptable quality levels (AQLs) set forth herein. The batch size, for purpose of determining the sample size in accordance with ANSI/ ASQ Z1.4, shall be expressed in units of O-rings, molded parts, or yards of sheets, strips or extruded shapes, as applicable, for examination in 4.4.4.1.1, 4.4.4.1.2, and 4.4.5. If the end item is less than 1 yard, the sample unit shall be the end item.

4.4.4.1.1 Examination for Defects in Appearance and Workmanship

4.4.4.1.1.1 Molded Parts Including O-rings

The sample unit shall be one molded part and the examination shall be in accordance with ISO 3601-3 Grade CS for O-rings and AS5752 for other molded products. The sample size shall be in accordance with inspection level II of ANSI/ ASQ Z1.4 and the acceptance quality levels (AQL) shall be 0.65 major and 1.5 total.

4.4.4.1.1.2 Sheets, Strips, and Extruded Shapes

The sample unit shall be 1 yard, except if the end item is less than 1 yard, the sample unit shall be the end item. The examination shall be in accordance with MIL-STD-289 and MIL-STD-298, as applicable. Defects in marking such as "incomplete, not legibly identified", or as specified in 3.6.2.1 shall be considered minor. The sample size shall be in accordance with inspection level II of ANSI/ ASQ Z1.4 and the acceptable quality levels (AQL) shall be 1.0 major and 2.5 total.

4.4.4.1.2 Examination for Dimensional Defects

4.4.4.1.2.1 Molded Parts Including O-rings

The sample unit shall be one molded part. The dimensions for O-rings shall be within the tolerances in AS29561 unless otherwise specified. The following tolerances shall apply for other molded parts unless otherwise specified:

TABLE 4

<u>Range (inches)</u>	<u>Tolerances (inches)</u>
0.125 or less	±0.016
Over 0.125 to 0.250	±0.024
Over 0.250 to 0.50	±0.032
Over 0.50 to 1.00	±0.046
Over 1.00	±4 percent

The sample size shall be in accordance with inspection level S-3 of ANSI/ ASQ Z1.4 and the acceptable quality level (AQL) shall be 0.65.

4.4.4.1.2.2 Sheets, Strips and Extruded Shapes

The sample unit shall be 1 yard except if the end item is less than 1 yard, the sample unit shall be the end item. The dimensions shall be within the tolerances in 3.3.2.1. Dimensions for extruded shapes shall be as specified on the drawing or in the contract. If these dimensions are not specified, they shall be in accordance with those given for molded parts in 4.4.4.1.2.1. The sample size shall be in accordance with inspection level II of ANSI/ ASQ Z1.4 and the acceptable quality level (AQL) shall be 1.5.

4.4.5 Examination for Defects in Preparation for Delivery

An examination shall be made to determine that the packaging, packing, and markings comply with Section 5. The sample unit for this examination shall be one shipping container fully packed, selected just prior to the closing operation. Shipping containers fully prepared for delivery shall be examined for closure defects.

TABLE 5

Examine	Define
Packaging (O-rings, molded parts, and extruded shapes)	Not the level specified. Not packaged as specified or required. Packaging material, closures not as specified. Unit items not individually wrapped when specified.
(Sheets)	Not interleaved; separator sheets do not fully cover the full area of contact between the sheets. Stacked over 10 inches high.
(Strips)	Not in rolls; not wound on suitable cores. Rolls not wrapped or sealed as specified. Total length per roll varies by more than the indicated tolerances (5.1.1.2.2).
Packing	Not level specified; not in accordance with contract requirements. Container not as specified, closures not accomplished by specified or required methods or materials. Any nonconforming component, component missing, damaged or otherwise defective, affecting serviceability. Inadequate application of components, such as incomplete closure of case liners, containing flaps loose or inadequate strapping, bulged or distorted containers.
Count	Less than specified or indicated quantity, linear footage, or units, as applicable.
Weight	Gross weight exceeds specified requirements.
Markings	Interior or exterior markings, as applicable, omitted, illegible, incorrect, incomplete, or not in accordance with contract requirements (See 5.3). Date of cure, storage instructions missing (See 5.3.1).

The sample size shall be in accordance with inspection level II of ANSI/ ASQ Z1.4 and the acceptable quality level (AQL) shall be 2.5.

4.4.6 Quality Conformance Tests

The following tests shall be conducted on each lot of material:

TABLE 6

Original	Air aged
Tensile strength	22 hours at 257 °F ± 2
Elongation	Compression set
Hardness	

If the items are unsuitable for use as test samples, tests shall be performed on samples of identical composition and state of cure as the end item.

4.4.6.1 Rejection Criteria

A lot shall be rejected upon the failure of any sample to meet the test requirements specified herein.

4.5 Test Conditions

4.5.1 Control Fluid

The control fluid used to conduct the oil aging in this specification shall be in accordance with AMS3021. It consists of a MIL-PRF-7808 standard production base fluid plus 0.5 percent phenothiazine. New fluid shall be used for each aging test.

4.5.2 Atmospheric Conditions

All fluid cooling, conditioning, and physical property determinations of rubber shall be conducted in an atmosphere of 50 percent \pm 15 relative humidity and at a temperature of 75 °F \pm 5.

4.6 Test Methods

4.6.1 Corrosion and Adhesion Test

4.6.1.1 Corrosion and Adhesion

Material shall be prepared for corrosion testing by inserting sufficient quantities in a desiccator or similar humidity chamber maintained at 92 percent minimum relative humidity and room temperature for 72 hours minimum. Metallic plates of the metals listed below shall be polished to a surface roughness of 4 to 16 RHR finish in accordance with ASME B46.1-85. The edges shall also be polished to reduce the formation of edge corrosion. The plates shall be washed with toluene or aliphatic naphtha, or similar degreasing agent that will produce a clean dry surface free from film. The metals used shall be as follows:

Aluminum alloy: AMS-QQ-A-250/4

Brass: ASTM B 36

Phosphor bronze: ASTM B 139

Steel: SAE AMS6345 Normalized or Otherwise Heat Treated

4.6.1.2 Immersion of Rubber Material and Metallic Plates

The humidified rubber material and the metallic plates shall be immersed in type I fluid of MIL-PRF-6083, and drained to the drip point. The rubber material and plates shall then be so laid together in a stack that at least two rubber pieces contact each specified metal. The stack shall be held together with a pressure of 20 to 30 pounds and placed in a desiccator which is maintained at 90 to 92 percent relative humidity at room temperature. A separate set of metallic plates shall also be prepared (buffing, cleaning, and dipping in rust-preventive fluid and drained) and placed in this desiccator in such a manner that the control plates do not touch each other or any of the rubber.

NOTE: di-potassium acid phosphate K_2HPO_4 , when placed in distilled water in sufficient quantity to produce a concentrated solution, will maintain approximately 92 percent humidity in a sealed desiccator at 68 °F temperature.) Test time shall be 14 days. No more than 15 minutes should elapse between the time the test samples are removed from the prehumidifying chamber and placed in the stacked condition in the second humidity chamber.

4.6.1.3 Inspection at the Termination of the Test

At the termination of this test, there shall be no adhesion of the rubber material to the metals. There shall be only slight evidence of pitting, erosion, corrosion, or bad discoloration on the plates, as shown by the following procedure, unless metallic plates are entirely unaffected by the test:

- 4.6.1.3.1 The surfaces of the plates that were in contact with the packings shall be inspected for discoloration, deposits, pitting, etc. If any exists, the surfaces of the plates shall be washed in precipitation naphtha. Deposits determined as rubber compounds or elements therefrom, which can be removed by this process and which do not occur on the separate control plates, shall be construed as adhesion.
- 4.6.1.3.2 If any other marks remain on the surfaces of the plates after step (a) above, the surfaces shall be lightly polished with a nonabrasive cloth buff. Any pits or eroded marks remaining after this process shall be construed to be corrosion. Discoloration or staining (marks which do not physically affect the surface of the plates and which easily wash or buff off) shall not be considered detrimental. If any doubt should arise about the presence of pitting, erosion, or corrosion on the metal plates, a microscope of approximately 10 to 15 power magnification shall be used to determine the actual condition.

4.6.2 Physical Properties

Unless otherwise specified, the following physical properties shall be determined in accordance with the ASTM test methods for rubber products:

TABLE 7

Property	ASTM method
Hardness	D 2240
Tensile strength and elongation	
Type I	D 1414
Type II ^{1/}	D 412
Volume change	D 471
Specific gravity	D 297, Hydrostatic method
^{1/} Die "C" shall be used for type II materials.	

4.6.2.1 Temperature Retraction (TR-10)

The temperature retraction test shall be conducted in accordance with ASTM D 1329. Three O-ring specimens as specified in 4.3.1 shall be used for type I and shall be elongated 50 percent in accordance with the rod markings. The temperature retraction test type II shall be conducted on three 2-inch or 1-inch specimens.

4.6.3 Air Aging

Air aging shall be conducted in accordance with ASTM D 573, except that the aging time and temperature shall be in accordance with Table 2.

4.6.4 Oil Aging

Oil aging of specimens shall be conducted in clean 39 millimeters (mm) OD by 300 mm pyrex glass test tubes fitted with 2-hole cork stoppers. Each stopper shall be fitted with 2 lengths of 8 mm pyrex glass tubing (chimneys), one 3 inches in length, the other 5 inches in length. The 3-inch chimney shall extend through and 1/2 inch above the top of the stopper. The 5-inch chimney shall extend through and 3-1/2 inches above the top of the stopper. An aluminum block heater shall be used for aging the specimens. Use of an oil bath is permissible but is not desired. For each test, 140 milliliters (ml) of oil shall be used. The test tubes shall be inserted into the aluminum block or oil bath in such manner that the fluid level in the test tubes shall be approximately 1-5/8 inches above the heating unit of the aluminum block or surface of the oil bath. This distance shall not be measured from the top of the aluminum block or covering of the oil bath. The specimens shall be suspended in the oil by soft iron or nichrome wire hangers as follows:

- 4.6.4.1 Type I: Three specimens shall be suspended horizontally in the fluid, one each at depths of 1-1/2 inches, 3-1/2 inches, and 5-1/2 inches below the surface of the fluid. Hardness specimens shall be placed in a separate chimney stoppered tube keeping approximately the same rubber to oil ratio.

4.6.4.1.1 Type II: Four dumbbells cut with a die "C", conforming to ASTM D 412, shall be tested. There shall be only two specimens aged in a single test tube. The specimens shall be suspended vertically in the fluid, one each at depths of 1 inch and 2 inches below the surface of the fluid. The measurement of specimen depth in the fluid shall be made between the top edge of the specimen and the fluid level. Care shall be taken to prevent contact of specimens with each other or the wall of the test tube.

4.6.4.1.2 The oil-aging time and temperature shall be 70 hours at $257\text{ }^{\circ}\text{F} \pm 2$. After aging and prior to the physical property determinations, the specimens shall be removed from the hot fluid and cooled 30 minutes in fresh fluid. Tensile strength, elongation, hardness, volume change, and temperature retraction (TR-10) shall then be determined as specified in 4.6.2 and 4.6.2.1.

4.6.4.2 Cracking Test

For type I material, three oil-aged O-rings shall be rolled onto a smooth surface cone. The base of the cone shall be 2-1/2 inches in diameter. The height of the cone shall be 10 inches. The diameter at which cracking first appears shall be measured and recorded. For type II material, three aged dumbbells or strips 1/4 inch wide shall be cut from sheet stock and used for this test. Each specimen or type II material shall be bent back 180 degrees upon itself.

4.6.4.3 Compression Set

Except where otherwise specified, compression set shall be determined in accordance with ASTM D 395 Method B. Specimens for type I material shall be two O-rings. Type II material shall use two circular specimens of plied-up sheets with dimensions of 1.129 ± 0.001 diameter and approximately 0.5 inch thickness. The compression set plates for the O-rings 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 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 AMS3021 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 AMS7276 (size-240 has been used). The beaker shall be placed in a suitable oven at $257\text{ }^{\circ}\text{F} \pm 2$ 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 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.

4.6.4.4 Air Aged Compression Set

Compression set shall be determined in accordance with ASTM D 395, method B unless otherwise specified. Specimens for type I material shall be two O-rings. Two circular plied-up buttons with dimensions of $0.129 \text{ inch} \pm 0.010$ diameter and approximately 0.5 inch thick shall be used for type II material. The percentage of compression employed shall be 25 percent.

4.7 Packing Inspection

Sample packages and packs and the inspection of the packaging, packing and marking for shipment and storage shall be in accordance with the requirements of Section 5 and the documents specified therein, or as otherwise specified in the contract or order.

5. PACKAGING

5.1 Preservation-Packaging

Preservation-packaging shall be level A or C as specified (See 6.3).