



AEROSPACE MATERIAL SPECIFICATION

AMS7274™**REV. K**Issued 1949-03
Revised 2020-07

Superseding AMS7274J

(R) Rubber: Acrylonitrile-Butadiene (NBR)
Engine Oil Resistance, 65 to 75 Hardness,
for Seals in Aircraft Engine Oil Systems

RATIONALE

AMS7274K results from a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers an acrylonitrile-butadiene (NBR) rubber in the form of molded rings, compression seals, O-ring cord, and molded-in-place gaskets for aeronautical and aerospace applications. For sheet, strip, tubing, extrusions, and molded shapes, use the AMS3XXX specification which is intended for that use.

1.2 Application

These products have resistance to hot-petroleum-based lubricating oil, but usage is not limited to such applications. This acrylonitrile-butadiene (NBR) has a typical service temperature range of -67 to +302 °F (-55 to +150 °C) in engine oil. The service temperature range of the material is a general temperature range, but the presence of particular fluids and specific design requirements may modify this range. Each application should be considered separately. It is the responsibility of the user to determine that this specification is appropriate for the environments (temperature range, fluids exposure, etc.) in which it is sought to be used.

1.3 Order of Precedence

Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained. This specification is in addition to and in no way limiting, superseding, or abrogating any contractual obligation as required by the applicable procurement document. In the event of conflict in requirements, the order of precedence shall be:

1. Procurement document or contractual agreement and all statutory and regulatory requirements (excluding this document).
2. Applicable purchaser's drawing or AS3570 parts standard.
3. Specification referenced on the drawing.
4. This document.
5. All specifications referenced in this document.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering 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."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2020 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AMS7274K

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS7274K>

Documents

Document Sharing Hub

1.4 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 issue of the following documents in effect on the date of the purchase order form 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.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2817	Packaging and Identification of Molded Elastomeric Seals and Sealing Components
AIR851	O-Ring Tension Testing Calculations
ARP3050	Suitable Test Sizes for O-Ring Specifications
AS568	Aerospace Size Standard for O-Rings
AS3570	O-Ring Molded from AMS7274 Material
AS5316	Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly
AS5752	Aerospace - Visual Inspection Standard for Elastomeric Sealing Elements Other than O-Rings
AS6414	Manufacturing Processing Requirements for Molded Elastomer Components Used in Aerospace Applications

2.2 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 D297	Standard Test Methods for Rubber Products Chemical Analysis
ASTM D471	Standard Test Method for Rubber Property - Effects of Liquids
ASTM D1414	Standard Test Methods for Rubber O-rings
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness

2.3 ISO Publications

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

ISO 3601-1	Fluid Power Systems - O-Rings - Part 1: Inside Diameter, Cross Sections, Tolerances and Size Identification Code
ISO 3601-3	Fluid Power Systems - O-Rings - Part 3: Quality Acceptance Criteria

2.4 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, www.pri-network.org.

PD 2000 Procedures for an Industry Qualified Product Management Process

PD 2102 Aerospace Quality Assurance, Product Standards, Qualification Procedure, Elastomeric Seal

2.5 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada), 001-800-514-1564 (Mexico), or +1-414-272-8575 (all other locations), www.asq.org.

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

3. TECHNICAL REQUIREMENTS

3.1 Compound

Shall be prepared from ingredients as shall be necessary to achieve the requirements detailed in this standard and shall be a compound, based on the polymer specified in 1.1, suitably cured to produce product meeting the requirements of 3.2. Material used shall be based on 100% virgin butadiene-acrylonitrile elastomer. Reprocessed vulcanized material is not acceptable.

3.2 Qualification Properties

The material as processed by the molder in the form as defined in Table 1 (test sample) shall conform to the requirements shown in Table 1; calculations of tensile strength and elongation may be made in accordance with AIR851.

Material shall be tested on the part standard AS3570-214 pertaining to this material specification.