



AEROSPACE MATERIAL SPECIFICATION

AMS3377

REV. A

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Superseding AMS3377

Sealing Compound, Electrically Conductive Corrosion Inhibiting

RATIONALE

This specification does not have any qualified products. It is not being actively used. The Committee had a discussion at the October G-9 meeting to stabilize this specification which is reflected in the minutes.

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This document has been declared "Stabilized" by the SAE AMS G9 Aerospace Sealing Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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Documents

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1. SCOPE:

1.1 Form:

This specification covers a synthetic rubber sealing compound which is electrically conductive when used in a faying surface, contains corrosion inhibitors, and supplied as a two-component system which cures at room temperature, suitable for application by extrusion gun or spatula.

1.2 Application:

This product has been used typically for faying surface sealing and wet-installation of fasteners in aircraft structural joints where electrical conductivity is required, but usage is not limited to such applications. The sealing compound is usable from -65 to 200 °F (-54 to 93 °C).

1.3 Classification:

Sealing compound is classified on the basis of application time as follows:

Type 1 - 30 minute application time

Type 2 - 2 hour application time

1.3.1 Unless a specific type is ordered, either type may be supplied.

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.

AMS 2471	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
AMS 2629	Fluid, Jet Reference
AMS 3819	Cloths, Cleaning, for Aircraft Primary and Secondary Structural Surfaces
AMS 4037	Aluminum Alloy Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024;-T3 Flat Sheet, T-351 Plate), Solution Heat Treated
AMS 4049	Aluminum Alloy Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu - 0.23Cr, (Alclad 7075; -T6 Sheet, - T651 Plate), Solution and Precipitation Heat Treated

2.2 ASTM Publications:

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

ASTM D 412	Rubber Properties in Tension
ASTM D 792	Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM D 2240	Rubber Property - Durometer Hardness

2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

PPP-B-636	Box, Shipping, Fiberboard
PPP-C-96	Can, Metal, 28 Gage and Lighter
MIL-C-38736	Compound, Solvent, for Use in Integral Fuel Tanks
MIL-STD-2073-1	DOD Materiel, Procedures for Development and Application of Packaging Requirements
MS 21042	Nut, Self Locking, 450 Dea F, Reduced Hexagon, Reduced Height, Ring Base, Non Corrosion Resistant Steel
NAS 603	Screw, Machine, Aircraft, Pan Head, Phillips Recess, Full Thread, Alloy Steel

3. TECHNICAL REQUIREMENTS:

3.1 Materials:

The basic ingredient shall be polysulfide type synthetic rubber with added available chromate for corrosion inhibition. Compound shall also contain 0.9 to 2.5% by weight deoxidized aluminum particles which are 50 to 200 mesh in size. Compound shall cure by addition of a curing agent to the base compound, and shall not depend on solvent evaporation for curing. The curing agent shall possess sufficient color contrast to the base compound to permit easy identification of an unmixed or incompletely mixed sealing compound. Neither the base compound nor cured sealant shall be red or pink in color.

3.2 Properties:

Compound shall conform to the requirements shown in Table 1, determined in accordance with test methods specified in 4.5:

TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.2.1	Specific Gravity, maximum	1.65	ASTM D 792, Method A-1
3.2.2	Hardness, Shore A Durometer, minimum		ASTM D 2240
3.2.2.1	Type 1 - After curing at standard conditions for 48 hours	35	4.5.1
3.2.2.2	Type 2 - After curing at standard conditions for 72 hours	35	4.5.1
3.2.3	Nonvolatile Content, minimum	97% by weight	4.5.3
3.2.4	Tack-Free Time, maximum		4.5.4
3.2.4.1	Type 1	10 hours	
3.2.4.2	Type 2	24 hours	
3.2.5	Viscosity of Base Compound	6000 to 16000 Poises (600 to 1600 Pa.S)	4.5.5
3.2.6	Flow	0.1 to 0.75 inch (2.5 to 19.0 mm)	4.5.6
3.2.7	Application Time, minimum	15 grams/minute	4.5.7
3.2.8	Electrical Resistance, maximum	0.002 ohms	4.5.8
3.2.9	Weight Loss, maximum	8%	4.5.9
3.2.10	Flexibility, Room Temperature	No cracking when bent	4.5.9
3.2.11	Low-Temperature Flexibility	No visual evidence of cracking or checking.	4.5.10
3.2.12	Accelerated Storage Stability	14 Days at 120 °F (49 °C)	4.5.11
3.2.13	Long-Term Storage Stability	6 months at 77 °F (25 °C)	4.5.11
3.2.14	Soluble Chromate Content	3.0 to 7.0% by weight.	4.5.12
3.2.15	Tensile Strength, minimum	250 psi (1725 MPa)	4.5.13
3.2.16	Elongation, minimum	200%	4.5.13

TABLE 1 - Properties (Continued)

Paragraph	Property	Requirement	Test Method
3.2.17	Resistance to Salt Water and Hydrocarbons	No visual evidence of softening, blistering, or evidence of corrosion.	4.5.14
3.2.18	Hydrolytic Stability, Shore A Hardness, minimum	30	4.5.15
3.2.19	Corrosion Inhibition	No corrosion.	4.5.16
3.2.20	Resistance to Heat	No visual evidence of softening, sponging, blistering, checking, cracking, shrinkage, or powdering.	4.5.17
3.2.21	Heat Reversion Resistance	Compound shall not revert to a liquid or paste-like consistency, nor shall it become brittle or lose adhesion.	4.5.18
3.2.22	Shear Strengt	200 psi (1379 MPa)	4.5.19

3.3 Appearance:

Compound, as received by purchaser, shall be uniform in quality and condition, as free from foreign materials as commercially practicable and free from imperfections detrimental to usage of the compound. There shall be no separation of ingredients that cannot be readily dispersed.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of compound shall supply all samples 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 compound conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for hardness (3.2.2), nonvolatile content (3.2.3), tack-free time (3.2.4), viscosity of base compound (3.2.5) except as specified in 4.2.1.1, flow (3.2.6), application time (3.2.7), and electrical resistance (3.2.8) are acceptance tests and shall be performed on each lot.

4.2.1.1 Viscosity of base compound need not be performed on compound packaged in sectionalized containers or in containers with less than 8 ounces (237 mL) of compound.

4.2.2 Qualification Tests: Tests for all technical requirements are qualification tests (See 8.2) and shall be performed prior to or on the initial shipment of compound 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 test material 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 sealing compound shall be taken 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. Multiple testing is not required for viscosity, application time, flow, tack-free time, hardness, and electrical resistance.

4.3.1.1 A lot shall be the quantity of formulated compound mixed as one production entity.

4.3.1.2 Compound for testing shall be mixed, as much as practical, in the same containers in which the compound was procured.

4.3.1.3 When a statistical sampling plan has been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report for 4.6 shall state that such plan was used.

4.3.2 For Qualification Tests: Samples shall consist of three 1 quart (1 liter) containers of compound.

4.3.2.1 For U.S. Government Procurement: Samples shall be identified as specified herein and forwarded to the activity responsible for qualification as designated in the letter of authorization from that activity (See 8.2). Samples for qualification shall be identified as follows:

SEALING COMPOUND, ELECTRICALLY CONDUCTIVE, CORROSION INHIBITING

Specification AMS 3377A

Manufacturers Number

Name of Manufacturer

Date of Manufacture

Batch Number

Submitted by (Name) (Date) for qualification test in accordance with
AMS 3377A under authorization (Reference Authorization Letter)