



# AEROSPACE MATERIAL SPECIFICATION

**AMS2700™****REV. G**Issued 2000-03  
Revised 2025-05Superseding AMS2700F  
AMS-QQ-P-35

## Passivation of Corrosion Resistant Steels

### RATIONALE

AMS2700G results from a Five-Year Review and update of this specification with changes to Ordering Information, Types (see 1.3.2), Class 3 (see 1.3.3.3), Authority (see 1.5), Procedure (see 3.1.1), Method 1 (see 3.1.2.1), Bath Composition (see 3.1.3.1), Rinsing (see 3.1.4.1), Post-Treatment (see 3.1.5), Corrosion Resistance (see 3.2.1), Copper Sulfate Test (see 3.2.1.3), Salt Spray Test (see 3.2.1.4), Ferroxyl Test (see 3.2.1.5), Sampling for Testing (see 4.3 and 4.3.3), Control Factors (see 4.4.3), Reports (see 4.5), Notes (see Notice, 8.9, and 8.10), and Table 4. Alternative Corrosion Test, formerly 3.2.1.3, was deleted.

### NOTICE

ORDERING INFORMATION: The following information shall be provided to the passivation processor by the purchaser.

1. Purchase documents should specify not less than the following:

- AMS2700G
- Material being processed
- Quantity of parts to be processed
- Passivation method (see 1.3.1) and type (see 1.3.2), if applicable
- Verification class (see 1.3.3)
- Post-treatment, if required (see 3.1.5)
- Corrosion-resistance test (see 3.2.1)

2. Parts manufacturing operations such as heat treating, forming, joining, and media finishing can affect the condition of the substrate for passivation or, if performed after passivation, could adversely affect the passivated part. The sequencing of these types of operations should be specified by the cognizant engineering organization or the purchaser and is not controlled by this specification (see 8.9).

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## 1. SCOPE

### 1.1 Purpose

This specification covers the requirements for a process to assure removal of free iron or other less noble contaminants from the surfaces of corrosion-resistant steel parts.

### 1.2 Application

The processes defined in this specification have been used typically to dissolve tramp metallic elements from the surfaces of corrosion-resistant steels to improve their corrosion resistance, but usage is not limited to such applications.

### 1.3 Classification

#### 1.3.1 Methods

Passivation methods covered by this specification are as follows:

Method 1 - Passivation in Nitric Acid

Method 2 - Passivation in Citric Acid

1.3.1.1 Either method may be used unless a method is specified by the purchaser. Where QQ-P-35 or AMS-QQ-P-35 is specified, Method 1 shall be used unless Method 2 is authorized by the cognizant engineering organization.

#### 1.3.2 Types

Method 1 passivation solution types used by this specification are as follows (see Tables 1 and 4):

- Type 1 Low-Temperature Nitric Acid with Sodium Dichromate
- Type 2 Medium-Temperature Nitric Acid with Sodium Dichromate
- Type 3 High-Temperature Nitric Acid with Sodium Dichromate
- Type 4 High Nitric Acid Concentration with Sodium Dichromate
- Type 5 Anodic Nitric Acid with Sodium Dichromate
- Type 6 Low-Temperature Nitric Acid
- Type 7 Medium-Temperature Nitric Acid
- Type 8 Medium-Temperature, High Nitric Acid Concentration

1.3.2.1 Where no type is specified for Method 1, the processor shall use one of the listed types that meet the requirements of Section 3. Table 4 should be consulted to determine which types are recommended for use.

#### 1.3.3 Classes

Passivation verification classes are as follows:

##### 1.3.3.1 Class 1

The following types of parts shall be selected for acceptance testing in accordance with 4.3.1:

1.3.3.1.1 Fasteners, including nuts, bolts, washers, rivets, and related hardware, where a test frequency is not otherwise defined in the procurement documents.

1.3.3.1.2 Standard parts defined by drawings labeled AN, MS, NAS, or similar, where a test frequency is not otherwise defined.

##### 1.3.3.2 Class 2

Frequency of corrosion-resistance testing shall be one part per lot (see 4.3.2).

### 1.3.3.3 Class 3

Frequency of corrosion-resistance testing shall be on a periodic basis (see 4.3.3).

### 1.3.3.4 Class 4

Parts for which AMS-QQ-P-35 or QQ-P-35 is specified shall be selected for acceptance testing as stated in 4.3.4.

1.3.3.5 When no class is specified and neither 1.3.3.1 nor 1.3.3.4 apply, class 2 shall apply.

## 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 that 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.

## 1.5 Authority

The cognizant engineering organization (CEO) may impose requirements or approve allowances that supersede the requirements in this AMS.

## 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.

### 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](http://www.sae.org).

AMS-QQ-P-35 Passivation Treatments for Corrosion-Resistant Steel

AMS-STD-753 Corrosion-Resistant Steel Parts: Sampling, Inspection and Testing for Surface Passivation

ARP4992 Periodic Test for Processing Solutions

AS7766 Terms Used in Aerospace Metals Specifications

### 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](http://www.astm.org).

ASTM A380 Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems

ASTM B117 Operating Salt Spray (Fog) Apparatus

## 2.3 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 8074      Surface Treatment of Austenitic Stainless Steel Parts

ISO 8075      Surface Treatment of Hardenable Stainless Steel Parts

## 2.4 Definitions

Terms used in AMS are defined in AS7766.

## 3. REQUIREMENTS

### 3.1 Procedure

3.1.1 Parts to be passivated shall be thoroughly cleaned so as to be free from oil, grease, fingerprints, machining fluids, and residues as indicated by a water-break free surface. Parts shall be free from any visible rust or scale (see 8.6).

### 3.1.2 Method 1 - Passivation in Nitric Acid

3.1.2.1 Passivation shall be accomplished by immersion in the applicable bath type (see 1.3.2) in accordance with Table 1. When permitted by the cognizant engineering organization, other nitric acid solutions may be used (see 8.11).