AEROSPACE MATERIAL SPECIFICATION

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Chemical Milling of Metals, Specification for

RATIONALE

AMS-C-81769 has been declared “STABILIZED” by AMS Committee B. This document will no longer be updated and may no longer represent standard industry practice.

STABILIZATION NOTICE

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NOTICE

This document has been taken directly from U. S. Military Specification MIL-C-81769 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-C-81769. Any part numbers established by the original specification remain unchanged.

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Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any material relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this technical report.

1. SCOPE:

1.1 This specification covers the requirements for surface metal removal of ferrous and non-ferrous metals by milling processes using controlled immersion of parts in chemical etching solutions.

2. APPLICABLE DOCUMENTS:

The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

2.1 U.S. Government Publications:

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

MIL-S-5002	Surface Treatments and Inorganic Coatings for Metal Surfaces of Weapons Systems
MIL-I-6866	Inspection, Penetrant, Method of
MIL-I-6870	Inspection Requirements, Nondestructive, For Aircraft Materials and Parts
MIL-T-9046	Titanium and Titanium Alloy, Sheet, and Plate
MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
FED-STD-151	Metals; Test Methods

2.2 SAE Publications:

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

AMS 5545	Plate, Sheet and Strip, Alloy-Nickel Base, 19 Cr, 11 Co, 10 Mo, 3 Ti, 1.5 Al, Vacuum Melted, Solution Heat Treated

2.3 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 117	Salt Spray (Fog) Testing
ASTM E 8	Tension Testing of Metalic Materials
ASTM E 290	Semi-Guided Bend Test for Ductility of Metallic Materials

2.4 ANSI Publications:

Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI B 46.1	Surface Texture

3. REQUIREMENTS:

3.1 Materials:

3.1.1 Etchants: Etchants, their compositions and control temperatures, are usually considered proprietary information. The criteria for an etchant shall be a uniform reaction on the work piece, good surface finish, reasonable temperature range and a feasible analytical control. The etchants may be modified by additives, concentration, and temperature to provide the best results for a particular metal or metallurgical condition. The etchants shall not downgrade the chemical and mechanical properties of the parts.