N-02-15
AMS 5822-85
1 August 1986

ADOPTION NOTICE

This non-Government document was adopted on 1 August 1986, and is approved for use by DoD. The indicated industry group has furnished the clearance required by existing regulations. Copies of the document are stocked by DoD Single Stock Point, Naval Publications and Forms Center, Philadelphia, PA 19120, for issue to DoD activities only. Contractors and industry groups must obtain copies directly from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

Title of Document: Steel Welding Wire, Corrosion and Moderate Heat Resistant 11.8Cr - 2.8Ni - 1.6Co - 1.8Mo - 0.32V Vacuum Induction Melted, Environment Controlled Packaging

Date of Specification Issue Adopted: 1 October 1985

Releasing Industry Group: Society of Automotive Engineers

NOTICE: When reaffirmation, amendment, revision, or cancellation of this standard is initially proposed, the industry group responsible for this standard shall inform the military coordinating activity of the proposed change and request participation.

Custodians:
Air Force - 20
Army - MR
Navy - AS

Military Coordinating Activity:
Air Force - 20

Project Number: 3439-0619

FSC 3439

AMSC No.: N/A

DISTRIBUTION STATEMENT A. Approved for public release; distribution unlimited.

THIS DOCUMENT CONTAINS 1 PAGES.

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5822B

Issued 1 OCT 1985
Revised 1 JAN 1993

Superseding AMS 5822A

Submitted for recognition as an American National Standard

STEEL, CORROSION AND HEAT RESISTANT, WELDING WIRE
11.8Cr - 2.8Ni - 1.6Co - 1.8Mo - 0.32V
Vacuum Induction Melted

UNS S41780

1. SCOPE:

1.1 Form:

This specification covers a corrosion and heat resistant steel in the form of welding wire.

1.1.1 MAM 5822 is the metric version of this AMS.

1.2 Application:

This wire has been used typically as filler metal for gas-metal-arc or gas-tungsten-arc welding of steels of similar composition requiring joints with good strength and oxidation resistance up to 800 °F, but usage is not limited to such applications.

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 2248 Chemical Check Analysis Limits, Wrought Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2371 Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS 2813 Packaging and Marking of Packaging of Welding Wire, Standard Method
AMS 2814 Packaging of Welding Wire, Premium Quality
AMS 2816 Identification, Welding Wire, Color Code System
ARP1876 Weldability Test for Weld Filler Metal Wire

2.2 ASTM Publications:

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

ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	0.10	0.15
Manganese	0.40	1.30
Silicon	--	0.40
Phosphorus	--	0.010
Sulfur	--	0.008
Chromium	11.00	12.50
Nickel	2.50	3.00
Cobalt	1.30	2.00
Molybdenum	1.50	2.00
Vanadium	0.25	0.40
Oxygen	--	0.005 (50 ppm)
Nitrogen	--	0.040 (400 ppm)
Hydrogen	--	0.001 (10 ppm)

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2248; no variation over maximum is permitted for oxygen, nitrogen, and hydrogen.

3.2 Melting Practice:

(R)

Steel shall be vacuum induction melted; it may be remelted using consumable electrode vacuum process, but remelting is not required.

3.3 Condition:

Cold worked, bright finish, in a temper and with a surface finish which will provide proper feeding of the wire in machine welding equipment.

3.3.1 Wire shall be furnished on disposable spools for machine welding or in cut lengths for manual welding, as ordered.

3.3.2 In-process annealing between cold rolling or drawing operations shall be performed in a suitable protective atmosphere.

3.3.3 Drawing compounds, oxides, dirt, oil, and other foreign materials shall be removed by cleaning processes which will neither result in pitting nor cause gas absorption by the wire or deposition of substances harmful to welding operations.

3.4 Properties:

Wire shall conform to the following requirements:

3.4.1 Weldability: Melted wire shall flow smoothly and evenly during welding and shall produce acceptable welds. ARP1876 may be used to resolve disputes.

3.4.2 Spooled Wire: Shall conform to 3.4.2.1 and 3.4.2.2.

3.4.2.1 Cast: Wire, wound on standard 12-inch diameter spools, shall have imparted to it a curvature such that a specimen sufficient in length to form one loop with a 1 inch overlap when cut from the spool and laid on a flat surface, shall form a circle 15 to 50 inches in diameter.

3.4.2.2 Helix: The specimen on which cast was determined, when laid on a flat surface and measured between adjacent turns, shall show a vertical separation not greater than 1 inch.

3.5 Quality:

Wire, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to welding operations, operation of welding equipment, or properties of the deposited weld metal.

3.6 Sizes and Tolerances:

Wire shall be supplied in the following sizes and to the tolerances shown in 3.6.1 and 3.6.2.

3.6.1 Diameter:
(R)

TABLE 2 - Wire Sizes and Tolerances

Form	Nominal Diameter Inch	Tolerance Inch plus	Tolerance Inch minus
Cut Lengths	0.030, 0.035, 0.045, 0.062	0.002	0.002
Cut Lengths	0.094, 0.125	0.003	0.003
Spools	0.010, 0.020	0.0005	0.0005
Spools	0.030, 0.035, 0.045, 0.062	0.001	0.002