NOTICE OF
NOTICE
ADOPTION

ADOPTION
20 December 1991
AMS 5798D
1 January 1991
SUPERSEDING
AMS 5798C
1 August 1986

AMS 5798D was adopted on 20 December 1991 and is approved for use by the Department of Defense (DOD). Copies of this document are stocked at the Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, Pennsylvania 19111-5094 for issue to DOD activities only. Other Government Agencies, contractors, private concerns, or other requestors must obtain the document from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

Title of Document: Alloy Welding Wire, Corrosion and Heat Resistant
47.5Ni - 22Cr - 1.5Co - 9.0Mo - 0.60W - 18.51Fe

Date of Specific Issue Adopted: 1 January 1991

Releasing Non-Government Standards Body: SAE

Custodians:
Air Force – 11
Army - MR
Navy – AS

Military Coordinating Activity
Air Force - 11

(Project No: 3439-0795)

FSC 3439

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

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

AEROSPACE MATERIAL SPECIFICATION

SAE AMS-5798 REV D

Issued 1958-04-15
Revised 1991-01-01
Superseding AMS-5798C

Submitted for recognition as an American National Standard

ALLOY WELDING WIRE, CORROSION AND HEAT RESISTANT
47.5Ni - 22Cr - 1.5Co - 9.0Mo - 0.60W - 18.5Fe

UNS N06002

1. SCOPE:

1.1 Form: This specification covers a corrosion and heat resistant nickel alloy in the form of welding wire.

1.2 Application: Primarily for use as filler metal for gas-tungsten-arc or gas-metal-arc welding of parts fabricated from alloys of similar or dissimilar composition.

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.

2.1.1 Aerospace Material Specifications:

AMS-2269 - Chemical Check Analysis Limits, Wrought Nickel Alloys and Cobalt Alloys
AMS-2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock
AMS-2813 - Packaging of Welding Wire, Standard Method
AMS-2814 - Packaging of Welding Wire, Premium Quality
AMS-2815 - Identification, Welding Wire, Line Code System
AMS-2816 - Identification, Welding Wire, Color Code System

2.1.2 Aerospace Recommended Practices:

ARP1876 - Weldability Test for Weld Filler Metal Wire

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

ASTM E 354 - Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, Ø determined by wet chemical methods in accordance with ASTM E 354, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min		max
Carbon	0.05	-	0.15
Manganese	--		1.00
Silicon	--		1.00
Phosphorus	--		0.040
Sulfur	--		0.030
Chromium	20.50	-	23.00
Cobalt	0.50	-	2.50
Molybdenum	8.00	-	10.00
Tungsten	0.20	-	1.00
Iron	17.00	-	20.00
Boron	--		0.010
Nickel	Remainder		

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS-2269.

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

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

3.2.2 Drawing compounds, oxides, dirt, and oil 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.

3.2.2.1 If pickling is necessary to remove surface contamination or scaling, only a light pickle shall be used.

3.3 Properties: Wire shall conform to the following requirements:

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

3.3.2 Spooled Wire: Shall conform to 3.3.2.1 and 3.3.2.2.

3.3.2.1 Ø Cast: Wire wound on standard 12-inch (305-mm) diameter spools shall have imparted to it a curvature such that a specimen sufficient in length, 4 - 14 feet (1.2 - 4.3 m), to form one loop, when cut from the spool and laid on a flat surface, shall form a circle 15 - 50 inches (381 - 1270 mm) in diameter.

3.3.2.2 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 (25 mm).

3.4 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.

3.5 Sizes and Tolerances: Wire shall be supplied in the sizes and to the tolerances shown in 3.5.1 and 3.5.2.

3.5.1 Diameter:

TABLE I

Form	Nominal Diameter Inch	Tolerance, Inch	
		plus	minus
Cut Lengths	0.030, 0.045, 0.062, 0.078	0.002	0.002
Cut Lengths	0.094, 0.125, 0.156, 0.188	0.003	0.003
Spools	0.007, 0.010, 0.015, 0.020	0.0005	0.0005
Spools	0.030, 0.035, 0.045	0.001	0.002
Spools	0.062, 0.078, 0.094	0.002	0.002

TABLE I (SI)

Form	Nominal Diameter Millimeters	Tolerance, Millimeters	
		plus	minus
Cut Lengths	0.76, 1.14, 1.57, 1.98	0.05	0.05
Cut Lengths	2.39, 3.18, 3.96, 4.78	0.08	0.08
Spools	0.18, 0.25, 0.38, 0.51	0.013	0.013
Spools	0.76, 0.89, 1.14	0.03	0.05
Spools	1.57, 1.98, 2.39	0.05	0.05

3.5.2 Length: Cut lengths shall be furnished in 18, 27, or 36 inch (457, 686, or 914 mm) lengths, as ordered, and shall not vary more than +0, -0.5 inch (-13 mm) from the length ordered.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Ø Responsibility for Inspection: The vendor of wire 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 wire conforms to the requirements of this specification.