

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 5806C

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Superseding AMS 5806B	

Alloy Welding Wire, Corrosion and Heat Resistant, Low Expansion
42Fe - 38Ni - 15Co - 3.0 (Cb + Ta) - 1.4Ti - 0.92Al
Vacuum Melted

(Composition similar to UNS N19903)

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1. SCOPE:

1.1 Form:

This specification covers a corrosion and heat resistant iron-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 alloys of similar composition requiring joints with strength and corrosion resistance comparable to those of the basis metal.

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 as specified in AMS 2350.

2.1 SAE Publications:

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

2.1.1 Aerospace Material Specifications:

- AMS 2248 Chemical Check Analysis Limits, Wrought Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
- AMS 2350 Standards and Test Methods
- 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 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.

- 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, 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	--	0.06
Manganese	--	1.00
Silicon	--	0.35
Phosphorus	--	0.015
Sulfur	--	0.008
Nickel	36.00	40.00
Cobalt	13.00	17.00
Columbium + Tantalum	2.40	3.50
Titanium	1.20	1.60
Aluminum	0.70	1.15
Chromium	--	1.0
Molybdenum	--	0.20
Boron	--	0.003
Copper	--	0.20
Calcium	--	0.0010 (10 ppm)
Oxygen	--	0.0025 (25 ppm)
Nitrogen	--	0.0050 (50 ppm)
Iron	remainder	

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2248. No variation is permitted for calcium, oxygen, and nitrogen.

3.2 Condition:

Bright finished in a temper 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.