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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5555C

Issued NOV 1968
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Reaffirmed OCT 2000

Superseding AMS 5555B

Nickel Wire and Ribbon
99Ni

UNS N02205

1. SCOPE:

1.1 Form:

This specification covers a nickel in the form of round wire and rectangular ribbon.

1.2 Application:

These products have been used typically as weldable leads for electronic component parts, 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 purchase order.

2.1 SAE Publications:

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

AMS 2269	Chemical Check Analysis Limits, Wrought Nickel Alloys and Cobalt Alloys
AMS 2371	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7161 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

2.2 ASTM Publications:

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

ASTM E 8 Tension Testing of Metallic Materials
ASTM E 8M Tension Testing of Metallic Materials (Metric)
ASTM E 290 Semi-Guided Bend Test for Ductility of Matallic Materials
ASTM E 354 Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-163 Steel Mills Products, Preparation for Shipment and Storage

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 354, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Nickel + Cobalt	99.00	--
Magnesium	0.01	0.08
Titanium	0.01	0.05
Manganese	--	0.35
Iron	--	0.20
Carbon	--	0.15
Silicon	--	0.15
Copper	--	0.15
Sulfur	--	0.008

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

3.2 Condition:

Cold drawn or cold rolled; bright annealed.

3.2.1 Cold working compounds, oxides, and dirt shall be removed by cleaning processes which will not be harmful to application of the cleaned product.

3.3 Properties:

The product shall conform to the following requirements:

3.3.1 Tensile Strength: Shall be not higher than 75.0 ksi (517 MPa), determined in accordance with ASTM E 8 or ASTM E 8M.

3.3.2 Wrapping: Wire shall withstand, without cracking, wrapping at room temperature five full, closely-spaced turns around a diameter equal to the nominal diameter of the wire.

3.3.3 Bending: Ribbon shall withstand, without cracking, bending at room temperature in accordance with ASTM E 290 through an angle of 180 degrees around a diameter equal to the nominal thickness of the ribbon.

3.4 Quality:

The product, as received by purchaser, shall be uniform in temper and cross section. Surfaces shall be free scale, corrosion, cracks, seams, scratches, slivers, dirt, grease, oil, streaks, stains, pit marks, burns, dents, blisters, laps, grooves, inclusions, and other imperfections detrimental to usage of the product; magnification up to 30X may be used to determine conformance.

3.5 Tolerances:

Shall conform to the following:

3.5.1 Round Wire:

TABLE 2A - Round Wire Tolerances, Inch/Pound Units

Nominal Diameter Inch	Tolerances, Inch plus and minus
0.015 to 0.020, incl	0.0004
Over 0.020 to 0.030, incl	0.0005
Over 0.030 to 0.045, incl	0.0006

TABLE 2B - Round Wire Tolerances, SI Units

Nominal Diameter Millimeters	Tolerances, Millimeter plus and minus
0.38 to 0.51, incl	0.010
Over 0.51 to 0.76, incl	0.013
Over 0.76 to 1.14, incl	0.015

3.5.1.1 Round wire shall not be out-of-round by more than one-half the diametral tolerance.

3.5.2 Rectangular Ribbon:

3.5.2.1 Thickness:

TABLE 3 - Rectangular Ribbon Thickness Tolerances

Nominal Thickness Inch	Nominal Thickness Millimeter	Tolerance plus and minus Inch	Tolerance plus and minus Millimeter
0.004 to 0.025, incl	0.10 to 0.64, incl	0.0007	0.018

3.5.2.2 Width:

TABLE 4 - Rectangular Ribbon Width Tolerance

Nominal Thickness Inch	Nominal Thickness Millimeters	Tolerance plus and minus Inch	Tolerance plus and minus Millimeter
0.015 to 0.062, incl	0.38 to 1.57, incl	0.002	0.05

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the product 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 product conforms to the requirements of this specification.

4.2 Classification of Tests:

Tests for all technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2371.

4.4 Reports:

The vendor of the product shall furnish with each shipment a report showing the results of tests for chemical composition of each heat and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 5555C, nominal size, and quantity.