SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5555D

Issued NOV 1958
Reaffirmed OCT 2000
Revised MAR 2006

Superseding AMS 5555C

Nickel Wire and Ribbon
99Ni

(Composition similar to UNS N02205)

RATIONALE

AMS 5555D was revised to correct an error in Table 4 and to require reporting of both heat and lot number (see 4.4).

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 issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

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

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

2.2 ASTM Publications:

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

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

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 applicable 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: Shall be as shown in Table 2.

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: Shall be as shown in Table 3.

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: Shall be as shown in Table 4.

TABLE 4 - Rectangular Ribbon Width Tolerance

Nominal Width Inch	Nominal Width 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 the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests:

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 composition of each heat and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot number, AMS 5555D, nominal size, and quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2371.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Wire and ribbon shall be supplied in coils or on spools of a type and size agreed upon by purchaser and vendor.

5.1.2 Coils shall be individually wrapped with waterproof paper or packed in waterproof drums. Spools shall be boxed.