



AEROSPACE MATERIAL

Society of Automotive Engineers, Inc. SPECIFICATION

TWO PENNSYLVANIA PLAZA, NEW YORK, N. Y. 10001

AMS 4787

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Revised

BRAZING FILLER METAL, HIGH TEMPERATURE 82Au - 18Ni

1. SCOPE:

- 1.1 Form: This specification covers a gold-nickel alloy in the form of wire, rod, strip, pig, powder, shot, and chips.
- 1.2 Application: Primarily for joining corrosion and heat resistant alloys requiring corrosion and oxidation resistant joints with good strength at high temperatures.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

- 2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001.

2.1.1 Aerospace Material Specifications:

AMS 2222 - Tolerances, Copper and Copper Alloy Plate, Sheet and Strip
 AMS 2224 - Tolerances, Copper and Copper Alloy Wire
 AMS 2350 - Standards and Test Methods

- 2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM B214 - Sieve Analysis of Granular Metal Powders
 ASTM B293 - Subsieve Analysis of Granular Metal Powders by Air Classification

- 2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

3. TECHNICAL REQUIREMENTS:

- 3.1 Composition: Shall conform to the following percentages by weight, determined by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

	min	max
Gold	81.5	82.5
Nickel	17.5	18.5
Other Elements, total (3.1.1)	--	0.15

- 3.1.1 Determination not required for routine acceptance.

- 3.2 Condition: The product shall be supplied in the following condition:

SAE Technical Board rules provide that: "All technical reports, including standards, approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against infringement of patents."

3.2.1 Wire and Rod: Cold drawn, cold rolled, or extruded, as ordered, and, unless otherwise specified, annealed and pickled clean or bright annealed.

3.2.2 Sheet and Strip: Cold rolled hard.

3.2.3 Pig, Powder, Shot, and Chips: As fabricated.

3.3 Properties:

3.3.1 Color: May vary from gold to nickel gray (see 8.3).

3.3.2 Flatness: When unrolled, strip shall lie flat with no undue tendency to recoil.

3.4 Quality: The product shall be uniform in color, quality, and condition and free from foreign materials and from imperfections detrimental to its working qualities. Wire, rod, sheet, and strip shall be clean, sound, bright, and free from slivers, splitting, ragged edges, damaged ends, and other injurious imperfections. Pig, powder, shot, and chips shall have a metallic luster.

3.5 Sizes and Tolerances: Unless otherwise specified, material shall be supplied in the following standard sizes and to the tolerances shown:

3.5.1 Wire and Rod:

3.5.1.1 Nominal Diameters:

Inch	(Millimeters)	Inch	(Millimeters)
0.005	(0.127)	1/16	(1.588)
0.007	(0.178)	3/32	(2.381)
0.010	(0.254)	1/8	(3.175)
0.015	(0.381)	0.175	(4.445)
0.025	(0.635)	3/16	(4.762)
1/32	(0.794)	0.225	(5.715)
0.040	(1.016)	1/4	(6.350)
3/64	(1.191)		

3.5.1.2 Diameter Tolerance, Drawn Wire and Rod: AMS 2224 as applicable to refractory alloys.

3.5.1.3 Diameter Tolerance, Rolled or Extruded Wire and Rod:

Nominal Diameter or Distance Between Parallel Sides		Tolerance, Inch (mm) Plus and Minus	
Inch	(Millimeters)	Round	Square
1/32 to 1/16, incl	(0.794 to 1.588, incl)	0.005 (0.127)	--
Over 1/16 to 1/8, incl	(Over 1.588 to 3.175, incl)	0.006 (0.152)	--
Over 1/8 to 3/16, incl	(Over 3.175 to 4.762, incl)	0.007 (0.178)	0.009 (0.229)
Over 3/16 to 1/4, incl	(Over 4.762 to 6.350, incl)	0.008 (0.203)	0.010 (0.254)

3.5.2 Sheet and Strip:

3.5.2.1 Nominal Thicknesses:

Inch	(Millimeters)	Inch	(Millimeters)
0.001	(0.025)	0.006	(0.152)
0.0015	(0.038)	0.008	(0.203)
0.002	(0.051)	0.010	(0.254)
0.003	(0.076)	0.014	(0.356)
0.004	(0.102)	0.020	(0.508)
0.005	(0.127)	0.030	(0.762)

3.5.2.2 Tolerances: Unless otherwise specified, thicknesses less than 0.002 in. (0.051 mm) shall have a tolerance of ± 0.0002 in. (± 0.0051 mm); thicknesses 0.002 in. (0.051 mm) and over shall have tolerances conforming to AMS 2222 as applicable to refractory alloys. Width of individual rolls of strip shall not vary more than ± 0.010 in. (± 0.254 mm) from nominal. The length of strip in a roll is not limited except that no roll shall weigh more than 75 lb (34 kg).

3.5.3 Powder:

3.5.3.1 Nominal Sizes: -60, -100, -200, and -325 mesh.

3.5.3.2 Tolerances: Unless otherwise agreed upon by purchaser and vendor, the nominal mesh sizes shown in 3.5.3.1 shall be supplied in accordance with the following tolerances on particle size distribution, determined in accordance with ASTM B214:

Nominal Mesh Size	100% Through U. S. Sieve Series Number	No More Than 10% Through U. S. Sieve Series Number
-60	60	100
-100	100	200
-200	200	325
-325	325	3.5.3.2.1

3.5.3.2.1 No more than 10% finer than a 10 micron particle size, determined in accordance with ASTM B293.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to assure that the product conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as routine control tests.

4.3 Sampling: Shall be in accordance with the following; a lot shall consist of all material produced from a single furnace charge.

4.3.1 Composition: On one sample from each lot.

4.3.2 Properties: One sample from each lot.

4.4 Reports: