

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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Revised

ALLOY SHEET, CORROSION AND HEAT RESISTANT
Nickel Base - 15Cr - 2.5Ti - 1Cb - 0.7Al

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily parts such as buckets, blades, nozzle diaphragm vanes, burner liners and domes, requiring high strength up to 1500F; and oxidation resistance up to 1800F and parts which may be formed and then heat treated to improve strength at elevated temperatures. Processing and heat treatments affect available properties at various elevated temperatures.

3. COMPOSITION:

Carbon	0.08 max
Manganese	1.00 max
Silicon	0.50 max
Sulfur	0.01 max
Chromium	14.00-16.00
Nickel	70.00 min
Columbium	0.70-1.20
Titanium	2.25-2.75
Aluminum	0.40-1.00
Iron	9.00 max
Copper	0.20 max

4. CONDITION: Annealed and pickled, unless otherwise specified.

5. TECHNICAL REQUIREMENTS: (a) Hardness - Material as received shall have a hardness not exceeding Rockwell B89 (Vickers 195) or equivalent.

(b) Physical Properties After Aging - After aging at 1300F±20 for 20 hours and aircooled, the material shall conform to the following requirements:

Tensile Strength, psi	165,000 min
Yield Strength (0.2% Offset or at 0.0121 inch in 2 in. extension under load, psi	110,000 min
Elongation, % in 2 inch	15 min
Hardness,	Rockwell C28-35 (Vickers 310-360)

(c) Grain Size - Grain size shall be an average of 5 or more grains per linear inch (No. 6 - ASTM E19-46) at 100x magnification, when counted along two axes at right angles to each other.

6. QUALITY: The product shall be uniform in quality and condition, clean, sound, and free from foreign material and from internal and external defects detrimental to fabrication or to performance of parts. Material in which defects are revealed during fabrication will be subject to rejection.

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