

AEROSPACE

AMS 5552A

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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ALLOY SHEET, STRIP AND PLATE, CORROSION AND HEAT RESISTANT
Iron Base - 20.5Cr - 32Ni - 1.1Ti

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Parts and assemblies requiring oxidation resistance up to approximately 1800 F, but useful at the higher temperatures only when stresses are low, and where such parts may require welding during fabrication.
3. COMPOSITION:

Carbon	0.10 max
Manganese	1.50 max
Silicon	1.00 max
Sulfur	0.015 max
Chromium	19.0 - 22.0
Nickel	30.0 - 34.0
Cobalt, if determined	1.00 max
Titanium	0.75 - 1.50
Copper	0.50 max
Iron	remainder

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2269.

4. CONDITION:

- 4.1 Sheet: Cold rolled, annealed, and descaled.
- 4.2 Strip: Cold rolled and annealed, and descaled if necessary.
- 4.3 Plate: Hot rolled, annealed, and descaled, unless otherwise specified.

5. TECHNICAL REQUIREMENTS:

- 5.1 Tensile Properties:

Tensile Strength, psi	80,000 to 105,000
Yield Strength, at 0.2% Offset or at 0.0061 in. in 2 in. Extension Under Load (E = 28,500,000), psi	30,000 min
Elongation, % in 2 in.	30 min

- 5.1.1 Elongation requirements do not apply to material under 0.020 in. in thickness.
- 5.1.2 For widths 9 in. and over, tensile test specimens shall be taken with the axis perpendicular to the direction of rolling. For widths less than 9 in., tensile test specimens shall be taken with the axis parallel to the direction of rolling.

Section 8.3 of the SAE Technical Board rules provides 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 obligation to adhere to any SAE standard or recommended practice, and no commitment to conform 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 reports are responsible for protecting themselves against liability for infringement of patents."

- 5.2 Bending: Material shall withstand, without cracking, bending at room temperature through an angle of 180 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to the direction of rolling.

Form	Nominal Thickness Inch	Bend Factor
Sheet	0.010 - 0.250, incl	1
Strip	0.125 and under	1
Plate	0.187 to 0.750, incl	2

- 5.3 Grain Size: Shall be not larger than the following when determined in accordance with ASTM E112-60T:

Form	Nominal Thickness Inch	Average Grain diameter, in.	ASTM Grain Size
Sheet	0.050 and under	0.0030	4.5
	Over 0.050 to 0.250, incl	0.0043	3.5
Strip	0.005 to 0.010, incl	0.0009	8.0
	Over 0.010 to 0.125, incl	0.0030	4.5

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.
7. TOLERANCES: Unless otherwise specified, tolerances shall conform to all applicable requirements of the latest issue of AMS 2262.
8. REPORTS:
- 8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment and the results of tests on each thickness from each heat to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.
- 8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.