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

AMS 4908A
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TITANIUM ALLOY SHEET
8Mn
Annealed - 110,000 psi Yield

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

2. FORM: Sheet, strip, and plate.

3. APPLICATION: Primarily for parts requiring good formability and strength up to 600 F.

4. COMPOSITION: The product shall conform to the following:

		Check Analysis Under Min	or Over Max
Manganese	6.50 - 9.00	0.25	0.25
Carbon	0.20 max	--	0.04
ø Oxygen (if determined)	0.20 max(1)	--	--
Nitrogen	0.07 max	--	0.02
Hydrogen	0.015 max	--	0.002
Other elements, total	0.60 max(2)	--	--
Titanium	remainder		

(1) Oxygen need not be determined but if found in excess of this limit shall not be cause for rejection if all other requirements of this specification are met.

(2) Need not be reported.

5. CONDITION: Unless otherwise specified, hot rolled, with or without subsequent cold reduction, annealed, descaled, and leveled, having a surface appearance comø parable to a commercial corrosion resistant steel No. 2D Finish. Localized grinding for removal of pits and other surface blemishes shall be done only as agreed upon by purchaser and vendor.

6. TECHNICAL REQUIREMENTS: Material shall conform to the following requirements, ø and shall be capable of meeting these requirements after being heated to any temperature up to 1050 F for approximately 30 min. in air, cooled in air, and descaled.

6.1 Tensile Properties: These properties apply when the rate of strain is maintained at 0.003-0.007 in. per in. per min. through the yield strength, and then is increased so as to produce failure in approximately one additional minute. ø When a dispute occurs between purchaser and vendor over the yield strength values, a referee test shall be performed on a test machine having a strain-rate pacer, using a rate of 0.005 in. per in. per min. through the yield strength.

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Tensile Strength, psi	120,000 min
Yield Strength at 0.2% Offset or at 0.0182 in. in 2 in. Extension Under Load (E=15,500,000), psi	110,000 min
Elongation, % in 2 in.	10 min

6.1.1 Yield strength, when determined with axis of specimen parallel to direction of rolling, shall be not higher than 140,000 psi.

6.2 Bending: Material shall withstand, without cracking, bending at room temperature through an angle of 105 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
Under 0.070	6
0.070 to 0.187, incl	7

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from oil-cans of depth in excess of the flatness tolerance, ripples, and foreign materials. Pits, scale pattern, grind marks, and other internal and external imperfections which are detrimental to fabrication or to performance of parts are not acceptable.

Note. An "oil-can" is defined as an excess of material in a localized area of a sheet which causes the sheet to buckle in that area. When the sheet is placed on a flat surface and hand pressure is applied to the buckle, the buckle will spring through to the opposite surface or will spring up in another area of the sheet.

8. TOLERANCES: Material shall conform to the thickness (Tables I and III), width, length, and straightness tolerances shown in the latest issue of AMS 2242. Up to and including 36 in. in width, plates and sheets 0.025 in. or over in thickness shall be flat within 3% and sheets less than 0.025 in. thick within 5% of the distance between contact points of a straight edge when laid in any direction upon the material. Flatness of plates and of sheets over 36 in. in width shall be as agreed upon by purchaser and vendor. The amount of variation from flat shall be determined by measuring the distance from the straight edge to the material at the point of greatest deviation.

9. REPORTS:

9.1 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 tensile and bending requirements of this specification. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.