Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10000

AEROSPACE MATERIAL SPECIFICATION

AMS 4908B
Superseding AMS 4908A
Issued 11-1-52
Revised 11-1-68

TITANIUM ALLOY SHEET AND STRIP
8Mn
Annealed

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

2. APPLICATION: Primarily for parts requiring good formability and strength up to 600 F (316 C).

3. COMPOSITION:

	min	max	
Manganese	6.5	9.0	
Iron	--	0.5	
Carbon	--	0.08	
Oxygen	--	0.20	
ø Nitrogen	--	0.05	(500 ppm)
Hydrogen	--	0.015	(150 ppm)
Other elements, total (1)	--	0.40	
Titanium	remainder		

(1) Determination not required for routine acceptance

3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2249.

4. CONDITION: Unless otherwise ordered, the product shall be hot rolled, with or without subsequent ø cold reduction, annealed, descaled, and leveled, having a surface appearance comparable to a commercial corrosion resistant steel No. 2D Finish.

5. TECHNICAL REQUIREMENTS:

5.1 Annealing: Unless otherwise specified, material shall be annealed by heating to 1275 F ± 25 ø (690.6 C ± 14), holding at heat for 1 hr, and cooling to 1050 F (565.6 C) at a cooling rate not greater than 300 F deg (148.9 C) deg per hr, and air cooling to room temperature.

5.2 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. When a dispute occurs between purchaser and vendor over ø the yield strength values, a referee test shall be performed on a machine having a strain rate pacer, using a rate of 0.005 in. per in. through the yield strength and a cross head speed of 0.10 in. per min. above the yield strength; for such referee tests, yield strength shall be determined by the offset method.

Tensile Strength, psi	125,000 min
ø Yield Strength at 0.2% Offset or at 0.0182 in. in 2 in. Extension Under Load (E = 16,000,000), psi	110,000 min
Elongation, % in 2 in.	10 min

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

5.3 Bending: Material shall withstand, without evidence of cracking when examined at 20X magnification, 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, using either V-block, U-channel, or free bend procedure. Unless otherwise specified, the axis of bend shall be parallel to the direction of rolling. For V-block and Ø U-channel bend tests, specimen width shall be not less than 10 times the nominal thickness but not less than 1 inch. For free bend tests, minimum specimen width shall, when possible, be not less than 10 times the nominal thickness; maximum width need not be greater than 1 inch. Only one of these tests will be required in routine inspection. In case of dispute, results of bend tests using the V-block procedure shall govern.

Nominal Thickness Inch	Bend Factor
Up to 0.070, incl	6
Over 0.070 to 0.1875, excl	7

6. QUALITY: Unless otherwise specified, material shall be produced by multiple melting using consumable electrode practice; at least one of the melting cycles shall be under vacuum. The product shall be uniform Ø in quality and condition, clean, sound, and free from "oil cans" of depth in excess of the flatness tolerance, ripples, and foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

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 applied to the buckle, the buckle will spring through to the opposite surface or spring up in another area of the sheet.

Ø 7. TOLERANCES: Unless otherwise specified, tolerances shall conform to the following:

7.1 Thickness, Width, Length, and Straightness: The latest issue of AMS 2242.

7.2 Flatness: Flatness tolerance for material 36 in. and under in width shall be 3%. Flatness tolerance for Ø material over 36 in. wide shall be as agreed upon by purchaser and vendor.

7.2.1 Flatness shall be determined from the expression 100H/L, where "L" is the distance between contact points of a straight edge laid in any direction on the material and "H" is the distance from the straight edge to the material at the point of greatest separation.

7.2.2 Flatness tolerances do not apply to coiled products.

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 Ø results of tests on each lot to determine conformance to the hydrogen, tensile, and bending requirements of this specification. A lot is defined as all material of the same nominal thickness from the same heat processed at the same time. This report shall include the purchase order number, heat number, material specification number and its revision letter, thickness, size, and quantity from each heat.