Society of Automotive Engineers, Inc.
485 LEXINGTON AVENUE, NEW YORK, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATION

AMS 4029D
Superseding AMS 4029C
Issued 8-15-58
Revised 5-1-68

ALUMINUM ALLOY SHEET AND PLATE
4.5Cu - 0.85Si - 0.80Mn - 0.50Mg (2014-T6)

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 machined parts requiring high strength. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

3. COMPOSITION:

	min	max
Copper	3.9	5.0
Silicon	0.50	1.2
Manganese	0.40	1.2
Magnesium	0.20	0.8
Iron	--	1.0
Zinc	--	0.25
Titanium	--	0.15
Chromium	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

4. CONDITION: Solution and precipitation heat treated.

5. TECHNICAL REQUIREMENTS: The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.

5.1 Tensile Properties:

Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,500,000)		Elongation % in 2 in. or 4D, min
		psi, min	Extension Under Load in. in 2 in.	
0.020 to 0.039, incl	64,000	57,000	0.0149	6
Over 0.039 to 0.249, incl	66,000	58,000	0.0150	7
Over 0.249 to 0.499, incl	67,000	59,000	0.0152	7
Over 0.499 to 1.000, incl	67,000	59,000	0.0152	6
Over 1.000 to 2.000, incl	67,000	59,000	0.0152	4
Over 2.000 to 2.500, incl	65,000	58,000	0.0150	2
Over 2.500 to 3.000, incl	63,000	57,000	0.0149	2
Over 3.000 to 4.000, incl	59,000	55,000	0.0145	1

5.1.1 Tensile properties of material over 4.000 in. in thickness shall be as agreed upon by purchaser and vendor.

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5.1.2 When a dispute occurs between purchaser and vendor over the yield strength values, yield strength determined by the offset method shall apply.

5.2 Bending: Material shall be capable of withstanding, 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 material with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.020 to 0.039, incl	5
Over 0.039 to 0.050, incl	6
Over 0.050 to 0.124, incl	8
Over 0.124 to 0.249, incl	10
Over 0.249 to 0.499, incl	12

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 2202. Flatness tolerances for plate over 3.000 in. thick shall be as agreed upon by purchaser and vendor.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, thickness, size, and quantity.

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 and its revision letter, 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.

9. IDENTIFICATION: Unless otherwise specified, each sheet and plate shall be marked on one face, in the respective location indicated below, with the alloy number and temper, AMS 4029 or applicable Federal or Military specification designation, inspection lot number, manufacturer's identification, and nominal thickness in inches. An inspection lot shall be material of the same alloy, temper, section, and size traceable to a heat treatment lot or lots and subjected to inspection at one time. The characters shall be of such size as to be clearly legible, shall be applied using a suitable marking fluid, and shall be sufficiently stable to withstand normal handling.

9.1 Flat Sheet and Plate Under 6 In. Wide: Shall be marked in one or more lengthwise rows of characters recurring at intervals not greater than 3 feet. The inspection lot number may appear in the row marking or may appear at only one location on the piece.

9.2 Flat Sheet and Plate 0.375 In. and Under Thick, 6 - 60 In., Incl, Wide, and 36 - 200 In., Incl, Long: Shall be marked in lengthwise rows of characters recurring at intervals not greater than 3 ft, the rows being spaced approximately 6 in. on centers across the width and staggered. Every third row shall show the manufacturer's identification and nominal thickness in inches. The other rows shall show the alloy number and temper and AMS 4029 or applicable Federal or Military specification designation. The inspection lot number may be included in the rows with the alloy, temper, and specification designations or may appear at only one location on each piece.