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

AMS 4121C

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ALUMINUM ALLOY BARS, ROLLED, DRAWN, OR COLD FINISHED
4.5Cu - 0.90Si - 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. FORM: Bars, rods, and wire.

3. APPLICATION: Primarily for parts requiring high strength and whose fabrication does not involve welding or forming. Certain design and processing procedures may cause ø this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

4. 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	

5. CONDITION: Rolled, drawn, or cold finished, and solution and precipitation heat ø treated, unless otherwise specified.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Tensile Strength, psi	65,000 min
Yield Strength at 0.2% Offset or at 0.0145 in. in 2 in. Extension Under Load (E = 10,500,000), psi	55,000 min
Elongation, % in 2 in. or 4D	8 min

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

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6.1.2 Yield strength and elongation requirements do not apply to material under 0.125 inch. Tensile properties shall be as agreed upon by purchaser and vendor on rounds over Ø 8.000 in. in diameter, on squares, hexagons, and octagons over 4.000 in.; and on rectangles with a thickness over 4.000 in., or a maximum area over 36 sq inches.

6.2 Hardness: Material should have hardness not lower than Brinell 125 using 500 kg load and 10 mm ball or 1000 kg load and 9/16 in. ball or not lower than Brinell 130 using 1000 kg load and 10 mm ball, but shall not be rejected on the basis of hardness if the tensile property requirements are met.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

8. TOLERANCES: Unless otherwise specified, tolerances shall conform to all applicable Ø requirements of the latest issue of AMS 2201.

9. REPORTS:

9.1 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, size, and quantity.

9.2 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.

10. IDENTIFICATION: Unless otherwise specified, the product shall be identified as follows:

10.1 Each straight bar and rod 0.500 in. and over in diameter or distance between parallel sides shall be marked with the alloy number and temper, or AMS 4121, and manufacturer's identification. The characters shall be of such size as to be clearly legible, Ø shall be applied recurring at intervals not greater than 3 ft using a suitable marking fluid, and shall be sufficiently stable to withstand normal handling.

10.2 Smaller bars and rods, and straightened wire shall be bundled, boxed, or secured on Ø lifts and identified by 2 tags marked with the information of 10.1 and attached not farther than 2 ft from each end, to the product in each bundle, box, or lift.

10.3 Coiled wire, spooled wire, and coiled rod and bar shall be identified with the information of 10.1 marked on one flange of the spool or on a tag attached to each coil. Ø