

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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ALUMINUM ALLOY BARS, ROLLED  
4.5Cu - 0.9Si - 0.8Mn - 0.5Mg (14S-T6)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Rods, bars, and shapes.
3. APPLICATION: Primarily for parts requiring high strength and whose fabrication does not involve welding or forming.
4. COMPOSITION:

|                         |            |
|-------------------------|------------|
| Copper                  | 3.9 - 5.0  |
| Silicon                 | 0.5 - 1.2  |
| Manganese               | 0.40 - 1.2 |
| Magnesium               | 0.20 - 0.8 |
| Iron                    | 1.0 max    |
| Zinc                    | 0.25 max   |
| Titanium                | 0.15 max   |
| Chromium                | 0.10 max   |
| Other Impurities, each  | 0.05 max   |
| Other Impurities, total | 0.15 max   |
| Aluminum                | remainder  |

5. CONDITION: Solution and precipitation heat treated.

## 6. TECHNICAL REQUIREMENTS:

### 6.1 Tensile Properties:

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

- 6.1.1 Tensile properties of material under 0.170 in. in diameter or distance between parallel sides shall be as agreed upon by purchaser and vendor.

- 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 defects detrimental to fabrication or to performance of parts.

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