



# AEROSPACE MATERIAL

Society of Automotive Engineers, Inc.

TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

## SPECIFICATION

### AMS 4193

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Revised

#### ALUMINUM ALLOY SHEET AND PLATE

4.4Cu - 1.5Mg - 0.60Mn (2024-T861)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for structural parts of good strength. This material, when re-heat treated by the user, may not have the tensile properties shown. 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                  | 3.8       | 4.9  |
| Magnesium               | 1.2       | 1.8  |
| Manganese               | 0.30      | 0.9  |
| Iron                    | --        | 0.50 |
| Silicon                 | --        | 0.50 |
| Zinc                    | --        | 0.25 |
| Chromium                | --        | 0.10 |
| Other Impurities, each  | --        | 0.05 |
| Other Impurities, total | --        | 0.15 |
| Aluminum                | remainder |      |

4. **CONDITION:** Solution heat treated, cold reduced approximately 6% in thickness, 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<br>Inch | Tensile<br>Strength<br>psi, min | Yield Strength at 0.2% Offset<br>or at Extension Indicated<br>(E = 10,500,000) |                                      | Elongation<br>% in 2 in.<br>or 4D, min |
|---------------------------|---------------------------------|--------------------------------------------------------------------------------|--------------------------------------|----------------------------------------|
|                           |                                 | psi, min                                                                       | Extension Under Load<br>in. in 2 in. |                                        |
| 0.020 to 0.062, incl      | 70,000                          | 62,000                                                                         | 0.0158                               | 3                                      |
| Over 0.062 to 0.249, incl | 71,000                          | 66,000                                                                         | 0.0166                               | 4                                      |
| Over 0.249 to 0.500, incl | 70,000                          | 64,000                                                                         | 0.0162                               | 4                                      |

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