

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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### MAGNESIUM ALLOY FORGINGS AZ 80 X (Aged)

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

2. COMPOSITION:

Aluminum	7.80 - 9.20
Zinc	0.20 - 0.80
Manganese	0.12 min
Silicon	0.20 max
Copper	0.05 max
Nickel	0.005max
Iron	0.005max
Total Other Impurities	0.30 max
Magnesium	Remainder

3. CONDITION: (a) Forged and precipitation heat treated (aged).

(b) Test specimens, machined after aging from separately forged coupons representing the forgings and aged with the forgings, or machined after aging from prolongations on the forgings, shall conform to the following minimum physical properties:

Tensile Strength, psi	42,000
Yield Strength (0.2% Offset), psi	30,000
Equivalent Extension Under Load, inch in 2 in.	0.0132
Elongation, % in 4D	2.0

(c) When test specimens are machined from aged forgings with the axis approximately parallel to the forging flow lines, the physical properties shall conform to those specified in (b) above, except that elongation may be as low as 1.5% unless otherwise agreed between purchaser and vendor.

(d) Aged forgings and test specimens shall have hardness of not less than Brinell 75, using 500 kg load and 10 mm ball or the equivalent, or not less than Brinell 80, using 1000 kg load and 10 mm ball.

4. STOCK FOR FORGING: (a) The composition shall conform to that of Section 2 above.

(b) When a sample of the stock is forged to a test coupon, a test specimen taken from the coupon after proper aging shall show the physical properties in paragraphs 3(b) and 3(d), but this is not required in routine inspection. If a test specimen taken from the stock after proper aging shows the properties specified in paragraphs 3(b) and 3(d), the test shall be accepted as equivalent to the test of the forged coupon, but this test is not required.

(c) Stock shall be furnished in the as-fabricated condition.

(d) Tolerances shall be in accordance with commercial practice for the class ordered, unless otherwise specified.