AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 4041

Issued 11/1/41
Revised

ALUMINUM ALLOY SHEET AND STRIP, ALUMINUM COVERED

Heat Treated—Copper Magnesium Manganese (ALC24S-T)

1. ACKNOWLEDGMENT: A vendor must mention this specification number in all quotations and when acknowledging purchase orders.

2. COMPOSITION: (a) The material shall consist of an aluminum alloy of the following composition, coated on both sides with pure aluminum of approximately equal thickness. The total thickness of the aluminum layers shall be approximately 10% of the total thickness of the inner aluminum alloy layer.

Copper	3.8 - 4.9
Magnesium	1.2 - 1.8
Manganese	0.30 - 0.90
Iron	0.50 max
Silicon	0.50 max
Chromium	0.25 max
Zinc	0.03 max
Other Impurities, each	0.03 max
Other Impurities, total	0.10 max
Aluminum	remainder

(b) When the analysis is made on a sample milled from the material representative of the entire cross section of the sheet, the percentage of the various elements as determined by analysis, except aluminum, shall be increased eleven per cent and these figures shall be taken as the composition of the base metal.

3. CONDITION: (a) Heat treated.

(b) Test specimens, cut across the direction of rolling except on strips less than nine inches wide, shall conform to the following minimum requirements:

Thickness, inch	Tensile Strength Lb/sq. in.	Yield Strength Lb/sq. in.	Elongation % in 2 in.
0.010 - 0.020	56,000	37,000	12
0.021 - 0.128	56,000	37,000	15
0.129 - 0.250	56,000	37,000	13

(c) The material shall not crack when cold bent 180° over a diameter equal to the thickness times the following bend factor, the axis of the bend being parallel to the direction of rolling.

Thickness, inch	Bend Factor
0.010 - 0.040	4
0.041 - 0.128	5
0.129 - 0.250	8

4. QUALITY: The material shall be uniform in quality and temper, straight, flat, clean and smooth, free from seams, laminations, excessive blisters and other defects within the limits of best commercial manufacturing methods. Material revealing defects during fabrication is subject to rejection.

5. TOLERANCE: The following variations in thickness are permissible for the widths shown. All dimensions are in inches.

	Tolerance in inches or per cent of thickness (%T)				
Standard Thickness* in inches	Widths up to 36 incl.	Widths over 36 to 42 incl.	Widths over 42 to 48 incl.	Widths over 48 to 54 incl.	Widths over 54 to 60 incl.
0.204 0.188 0.156	4%T	5%T	5%T	5%T	6%T
0.125 0.102	0.0045	0.005	0.005	0.005	0.007
0.091 0.081 0.064 0.051	0.003	0.004	0.004	0.005	0.006
0.040	0.0025	0.003	0.003	0.004	0.005
0.032	0.002	0.0025	0.0025		
0.025 0.020	0.002	0.0025			
0.016	0.002				
0.014** 0.012** 0.010**	0.0015				

*Intermediate thicknesses take the tolerances of the next heavier standard thickness.

**In these thicknesses the tolerance applies to widths up to 28 inches.

6. REPORTS: The manufacturer shall furnish three copies of a notarized report stating that the physical properties and chemical composition of this material are within the requirements specified. The report shall include the purchase order number, material specification number, size, quantity, and part number if parts are supplied.

7. IDENTIFICATION: Unless otherwise specified, each plate or sheet shall be marked with the manufacturers' identification, and, in addition, the alloy name or number or the number of this specification, the thickness in inches and the temper in