

**Aircraft Material Specification**

**ALUMINIUM - MAGNESIUM - SILICON - MANGANESE ALLOY SHEETS  
(Mg 0.9, Si 0.9, Mn 0.7)**

(Solution treated and precipitation treated) (Suitable for welding)

*NOTE 1 :—This specification is one of a series issued by the Ministry of Supply, either to meet a limited requirement not covered by any existing British Standard for aircraft material or to serve as a basis for inspection of materials the properties and uses of which are not sufficiently developed to warrant submission to the British Standards Institution for standardisation.*

*NOTE 2 :—Sheets of this composition supplied in the annealed condition are covered by D.T.D.346A.*

**1. Inspection and testing procedure**

1.1 The material shall be inspected and tested in accordance with the requirements of Sections One and Nine of British Standard L.100.

**2. Quality of material**

2.1 The material shall be made from aluminium complying with the requirements of British Standards L.31, L.48 or L.49 and alloying constituents, with or without approved scrap, at the discretion of the manufacturer.

**3. Chemical composition**

3.1 The chemical composition of the material shall be as follows :—

	Per cent	
	Minimum	Maximum
Copper .. .. .	—	0.10
Magnesium .. .. .	0.4	1.5
Silicon .. .. .	0.60	1.3
Iron .. .. .	—	0.6
Manganese .. .. .	0.40	1.0
Chromium .. .. .	—	0.3
*Nickel .. .. .	—	0.2
*Zinc .. .. .	—	0.1
*Lead .. .. .	—	0.05
*Tin .. .. .	—	0.05
*Titanium .. .. .	—	0.3
Aluminium .. .. .	the remainder	

\* Subject to the discretion of the Inspecting Authority, determination of these elements need be made on a small proportion only of the samples analysed.

**4. Condition**

4.1 Unless otherwise required and stated on the order the material shall be supplied in the solution-treated, straightened and subsequently precipitation-treated condition.

**5. Heat treatment**

5.1 The material shall be heat treated as follows :—

Solution treat by heating to  $520^{\circ} \pm 10^{\circ}\text{C}$  and quenching in water at room temperature.  
Precipitation treat by heating uniformly at  $180^{\circ} \pm 10^{\circ}\text{C}$  for 3 to 12 hours.

**Mechanical properties**

6.1 The mechanical properties obtained from test pieces selected and prepared as stated in the appropriate clauses of British Standard L.100 shall be as specified below.

**6.2 Tensile test**

0.1 per cent proof stress (material thicker than 25 SWG only)	.. .. .	not less than 16.0 tons per sq. in.
Tensile strength	.. .. .	not less than 19.0 tons per sq. in.
Elongation	.. .. .	not less than 8 per cent.

**6.3 Bend test**

Angle of bend	.. .. .	180°
Radius of former	.. .. .	three times the nominal thickness of the material.

NOTE 1:—The specification is one of a series issued in the Ministry of Supply, which to meet a limited requirement are intended to supersede British Standards for aircraft materials or to provide a basis for the design of new materials. The properties and test methods are not necessarily intended to conform with the British Standards Institute for aircraft materials.

NOTE 2:—Details of this composition applied in the material condition are covered by B.L.U. 100.

1.1 The material shall be prepared and tested in accordance with the requirements of British Standard L.100.

1.2 Inspection and testing procedure

2.1 The material shall be made from standard alloy composition with the requirements of British Standard L.100.

2.2 The material shall be supplied in the condition specified in the requirements of British Standard L.100.

Approved for issue,

H. SUTTON,

Director of Materials Research and Development (Air)

	Per cent	
	Minimum	Maximum
Aluminium	.. .. .	the remainder
Titanium*	.. .. .	0.05
Zinc*	.. .. .	0.05
Nickel*	.. .. .	0.2
Chromium	.. .. .	0.7
Manganese	.. .. .	1.0
Iron	.. .. .	0.8
Silicon	.. .. .	1.1
Magnesium	.. .. .	0.4
Copper	.. .. .	0.10

\* Subject to the direction of the Inspector, Ministry of Supply, the determination of these elements shall be made on a small proportion only of the sample analysed.

4.1 Labels otherwise required and stated on the order for material shall be supplied in the condition specified.

4.2 Condition

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