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PROCUREMENT EXECUTIVE
MINISTRY OF DEFENCE

D.T.D. 5030A
(Superseding D.T.D. 5030)
June, 1971

Aerospace Material Specification

ALUMINIUM-COATED PLATE OF ALUMINIUM-COPPER-MAGNESIUM-SILICON-MANGANESE ALLOY

(Solution treated and aged at room temperature)

(Cu 4.4, Mg 0.5, Si 0.7, Mn 0.8)

NOTE 1. This specification is one of a series issued by the Procurement Executive, Ministry of Defence to meet a requirement not covered by an existing British Standard for aerospace material.

NOTE 2. Material supplied solution treated and aged at room temperature, when precipitation treated in accordance with specification D.T.D. 5040A, may be expected to have the mechanical properties stipulated in that specification; material so converted shall be suitably tested.

1. INSPECTION AND TESTING PROCEDURE

This specification shall be used in conjunction with Sections 1 and 14 of British Standard L.100.

2. QUALITY OF MATERIAL

2.1 The plate shall consist of a core of the alloy specified in 3.1 coated uniformly on both sides with aluminium of the chemical composition specified in 3.2. The minimum average thickness of the cladding on each side shall be 2%.

2.2 The core material shall be made from aluminium and alloying constituents, with or without approved scrap, at the discretion of the manufacturer.

3. CHEMICAL COMPOSITION

3.1 Core. The chemical composition of the core material shall be:

Element	Per cent	
	min	max
Copper	**3·9**	**5·0**
Magnesium	**0·20**	**0·8**
Silicon	**0·50**	**0·90**
Iron	—	0·5
Manganese	**0·40**	**1·2**
*Nickel	—	0·2
*Zinc	—	0·2
*Lead	—	0·05
*Tin	—	0·05
*Titanium plus Zirconium	—	0·2
*Chromium	—	0·10
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.

3.2 Cladding. The chemical composition of the cladding material shall be:

Element	Per cent	
	min	max
**Aluminium	99·7	—
Copper	—	0·02
Silicon	—	0·15
Iron	—	0·20
Zinc	—	0·03

**To be determined by difference

4. CONDITION

4.1 Except as provided in 4.2, the material shall be supplied solution treated and aged at room temperature.

4.2 If agreed between the manufacturer and the purchaser, the material shall be supplied in one of the following conditions, as stated on the order:

(1) As rolled.

(2) Annealed.

5. HEAT TREATMENT

The material shall be heat treated as follows:

(1) Solution treat by heating at a temperature of 505±5°C and quenching in water at a temperature not exceeding 40°C.

(2) Age at room temperature for not less than 48 hours.

6. MECHANICAL PROPERTIES

Tensile test. The mechanical properties obtained from test pieces selected and prepared in accordance with the relevant requirements of British Standard L.100 shall be not less than the following values:

Nominal thickness		0·2% proof stress	Tensile strength	Elongation on gauge length of	
				50 mm	$5{\cdot}65\sqrt{S_0}$
mm		N/mm²	N/mm²	%	%
Over	Up to and including				
6	12·5	250	390	12	—
12·5	25	260	400	—	10

NOTE. 1 N/mm² = 0·102 kgf/mm² = 0·1 hbar = 0·065 tonf/in². Information on SI units is given in BS 350, 'Conversion factors and tables', and in PD 5686, 'The use of SI units'.

Approved for issue,

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