AEROSPACE MATERIAL SPECIFICATION

AMS4470™ REV. C

Issued 2009-10
Revised 2018-12

Superseding AMS4470B

Aluminum Alloy, Plate (7085-T7451)
7.5Zn - 1.6Cu - 1.5Mg - 0.12Zr
Solution Heat Treated, Stress-Relieved, and Overaged
(Composition similar to UNS A97085)

RATIONALE

AMS4470C corrects an error in the identification paragraph (5.1.1) introduced at the prior revision.

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of plate 3.000 to 7.000 inches (76.20 to 177.80 mm) in nominal thickness (see 8.5).

1.2 Application

This product may be used in aerospace applications requiring a high level of mechanical properties and fracture toughness, good resistance to stress-corrosion cracking and resistance to exfoliation corrosion, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://standards.sae.org/AMS4470C

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2355	Quality Assurance, Sampling and Testing, Aluminum Alloys and Magnesium Alloy, Wrought Products (Except Forging Stock), and Rolled, Forged, or Flash Welded Rings
AMS2772	Heat Treatment of Aluminum Alloy Raw Materials
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B594	Ultrasonic Inspection of Aluminum-Alloy Wrought Products for Aerospace Applications
ASTM B645	Linear-Elastic Plane-Strain Fracture Toughness Testing of Aluminum Alloys
ASTM B660	Packaging/Packing of Aluminum and Magnesium Products
ASTM B666/B666M	Identification Marking of Aluminum and Magnesium Products
ASTM E399	Linear-Elastic Plane-Strain Fracture Toughness K_{IC} of Metallic Materials
ASTM G34	Exfoliation Corrosion Susceptibility in 2xxx and 7xxx Series Aluminum Alloys (EXCO Test)
ASTM G47	Determining Susceptibility to Stress-Corrosion Cracking of High Strength Aluminum Alloy Products

2.3 ANSI Accredited Publications

Copies of these documents are available online at http://webstore.ansi.org.

ANSI H35.1/H35.1M	Standard Alloy and Temper Designation System for Aluminum
ANSI H35.2	Dimensional Tolerances for Aluminum Mill Products
ANSI H35.2M	Dimensional Tolerances for Aluminum Mill Products (Metric)

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2355.

Table 1 - Composition

Element	Min	Max
Silicon	--	0.06
Iron	--	0.08
Copper	1.3	2.0
Manganese	--	0.04
Magnesium	1.2	1.8
Chromium	--	0.04
Zinc	7.0	8.0
Titanium	--	0.06
Zirconium	0.08	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Heat treatment shall be in accordance with AMS2772 to the -T7451 temper (refer to ANSI H35.1/H35.1M) and as follows: Solution heat-treatment and artificial age practices are proprietary. Material shall be stretched not less than 1-1/2%, nor more than 3%, prior to artificial aging.

3.3 Properties

Product shall conform to the following requirements, determined in accordance with AMS2355.

3.3.1 Tensile Properties shall be as shown in Tables 2A and 2B.

Table 2

Table 2A - Minimum tensile properties, inch/pound units

Nominal Thickness Inches	Grain Direction	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
	L	73.0	68.0	11
3.000-4.000	LT	73.0	66.0	8
	ST	72.0	61.0	4
	L	73.0	68.0	10
4.001-5.000	LT	73.0	66.0	7
	ST	71.0	61.0	4
	L	72.0	68.0	9
5.001-6.000	LT	73.0	65.0	6
	ST	70.0	61.0	4
	L	72.0	67.0	8
6.001-7.000	LT	72.0	64.0	5
	ST	69.0	60.0	4