



AEROSPACE MATERIAL SPECIFICATION

AMS4250™**REV. D**

Issued 2001-09
Reaffirmed 2012-04
Revised 2026-06

Superseding AMS4250C

Aluminum Alloy, Plate,
8.1Zn - 2.3Mg - 1.0Cu - Zr (7449-T7651),
Solution Heat Treated, Stress Relieved, and Overaged
(Composition similar to UNS A97449)

RATIONALE

AMS4250D results from a Five-Year Review and update of this specification with changes to update wording to prohibit unauthorized exceptions (see 3.3.5 and 8.4), relocate Definitions (see 2.4), rearrange Acceptance Tests listing for clarity (see 4.2.1), correct significant figures for tensile and compressive strength values for product 2.500 to 4.000 inches thick (see Table 2A and Table 3), update Condition (see 3.2) to refer to AMS2772 for heat-treatment practices, and update Applicable Documents (see Section 2) and Ordering Information (see 8.5).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of plate 0.250 to 4.000 inches (6.35 to 102.0 mm), inclusive, in nominal thickness (see 8.5).

1.2 Application

This plate has been used typically for structural applications requiring a combination of high tensile strength and compressive properties and good exfoliation-corrosion resistance, 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.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), 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

AMS2750 Pyrometry

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Full document details: SAE AMS4250D

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4250D/>

Documents

Standard, visit Sharing Hub

AMS2772 Heat Treatment of Aluminum Alloy Raw Materials

AS7766 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 B557 Tension Testing of Wrought and Cast Aluminum and Magnesium Alloy Parts

ASTM B594 Ultrasonic Inspection of Aluminum Alloy Wrought Products

ASTM B645 Linear-Elastic Plain Strain Fracture Toughness Testing of Aluminum Alloys

ASTM B660 Packing/Packaging of Aluminum Alloy and Magnesium Products

ASTM B666/B666M Identification Marking of Aluminum and Magnesium Products

ASTM E9 Compressive Testing of Metallic Materials at Room Temperature

ASTM E399 Linear-Elastic Plain-Strain Fracture Toughness 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 2XXX and 7XXX Aluminum Alloy Products

2.3 ANSI Publications

Copies of these documents are available online at <https://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)

2.4 Definitions

Terms used in AMS are defined in AS7766.

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	--	0.12
Iron	--	0.15
Copper	1.4	2.1
Manganese	--	0.20
Magnesium	1.8	2.7
Zinc	7.5	8.7
Titanium + Zirconium	--	0.25
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Solution heat treated, stretched to produce a nominal permanent set of 2% but not less than 1-1/2% nor more than 3%, and precipitation heat treated to the T7651 temper (refer to ANSI H35.1/H35.1M). Solution and precipitation heat treatment shall be performed in accordance with AMS2772.

3.3 Properties

Plate shall conform to the following requirements, determined on the mill-produced size in accordance with AMS2355 and as specified herein:

3.3.1 Tensile Properties

Shall be as specified in Table 2 when tested in accordance with ASTM B557.

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

Nominal Thickness Inches	Specimen Orientation	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
0.250 to 1.500, incl	Longitudinal	84.0	78.0	8
	Long-Trans.	84.0	77.0	8
Over 1.500 to 2.500, incl	Longitudinal	82.0	76.0	7
	Long-Trans.	82.0	75.0	6
	Short-Trans.	77.0	67.0	3
Over 2.500 to 3.000, incl	Longitudinal	81.0	75.0	7
	Long-Trans.	81.0	74.0	5
	Short-Trans.	77.0	67.0	1.5
Over 3.000 to 3.500, incl	Longitudinal	80.0	75.0	7
	Long-Trans.	81.0	74.0	5
	Short-Trans.	77.0	67.0	1.5
Over 3.500 to 4.000, incl	Longitudinal	79.0	74.0	6
	Long-Trans.	80.0	73.0	4
	Short-Trans.	77.0	67.0	1