



AEROSPACE MATERIAL SPECIFICATION

AMS4089™

REV. F

Issued	1976-07
Reaffirmed	2008-05
Revised	2020-06

Superseding AMS4089E

Aluminum Alloy, Plate
1.6Cu - 2.2Mg - 0.22Cr - 5.7Zn (7475-T7651)
Solution Heat Treated, Stress Relieved by Stretching,
and Precipitation Heat Treated
(Composition similar to UNS A97475)

RATIONALE

AMS4089F prohibits unauthorized exceptions (3.6), and revises condition (3.2), properties (3.3.1.1, 3.3.5), reports (4.4.1), and identification (5.1.1), and results from a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of plate 0.250 to 1.500 inches (6.35 to 38.10 mm) incl, in nominal thickness (see 8.6).

1.2 Application

This plate has been used typically for structural applications requiring material with high strength and resistance to exfoliation-corrosion, moderate fatigue strength, and high fracture-toughness, 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: 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 Alloys, 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

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4089F>

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
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 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 2XXX and 7XXX Aluminum Alloy Products

2.3 ANSI Accredited Publications

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

ANSI B46.1	Surface Texture
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	--	0.10
Iron	--	0.12
Copper	1.2	1.9
Manganese	--	0.06
Magnesium	1.9	2.6
Chromium	0.18	0.25
Zinc	5.2	6.2
Titanium	--	0.06
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Solution heat treated, stress-relieved by stretching 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) in accordance with AMS2772.