



AEROSPACE MATERIAL SPECIFICATION

AMS4475™**REV. C**Issued 2013-06
Revised 2024-04

Superseding AMS4475B

Aluminum Alloy, Coiled Sheet, Alclad,
4.4Cu - 1.5Mg - 0.60Mn (Alclad 2024; -T4 Coiled Sheet),
Solution Heat Treated
(Composition similar to UNS A82024)

RATIONALE

AMS4475C results from a Five-Year Review and update of this specification with changes to update wording to prohibit unauthorized exceptions (see 3.7, 3.11, 4.4.1, and 8.3), Applicable Documents (see Section 2), and Ordering Information (see 8.5), relocate Definitions (see 2.4) and note relating to the statistical analysis of properties (see 3.8), and allow use of the immediate prior specification revision (see 8.4).

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of alclad coiled sheet from 0.010 to 0.128 inch (0.25 to 3.25 mm), inclusive, in thickness supplied in the -T4 temper (see 8.5).

1.2 Application

These products have been used typically for medium-strength parts requiring formability and maximum corrosion resistance and whose fabrication does not involve welding, 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 Alloy, Wrought Products (Except Forging Stock), and Rolled, Forged, or Flash Welded Rings

AMS2772 Heat Treatment of Aluminum Alloy Raw Materials

AS7766 Terms Used in Aerospace Metals Specifications

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<https://www.sae.org/standards/content/AMS4475C/>

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 B660 Packaging/Packing of Aluminum and Magnesium Products

ASTM B666/B666M Identification of Aluminum and Magnesium Alloy Products

2.3 ANSI Accredited Publications

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

ANSI H35.1/H35.1M Alloy and Temper Designation Systems 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 as shown in Tables 1 and 2, determined in accordance with AMS2355.

Table 1 - Composition, core (2024)

Element	Min	Max
Silicon	--	0.50
Iron	--	0.50
Copper	3.8	4.9
Manganese	0.30	0.9
Magnesium	1.2	1.8
Chromium	--	0.10
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

Table 2 - Composition, cladding (1230)

Element	Min	Max
Iron + Silicon	--	0.70
Copper	--	0.10
Manganese	--	0.05
Magnesium	--	0.05
Zinc	--	0.10
Titanium	--	0.03
Vanadium	--	0.05
Other Elements, each	--	0.03
Aluminum	99.30	--

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Coiled Sheet

Solution heat treated and naturally aged to the T4 temper in accordance with AMS2772 (refer to ANSI H35.1/H35.1M).

3.3 Properties

The product shall conform to the following requirements, determined in accordance with AMS2355 on the mill-produced size:

3.3.1 Tensile Properties (T4 Temper)

Shall be as shown in Table 3 (see 3.8).

Table 3A - Minimum tensile properties, inch/pound units

Temper	Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
-T4	0.010 thru 0.020	58.0	36.0	12
	0.021 thru 0.062	58.0	36.0	15
	0.063 thru 0.128	61.0	38.0	15

Table 3B - Minimum tensile properties, SI units

Temper	Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
-T4	0.25 thru 0.51	400	248	12
	0.53 thru 1.57	400	248	15
	1.60 thru 3.25	421	262	15

3.4 Cladding Thickness

3.4.1 Thickness of Cladding Plates

The aluminum alloy plates that are bonded to the two sides of the aluminum alloy (2024) ingot or slab, to form a composite that is to be rolled, shall each have a thickness as specified in Table 4.

Table 4 - Cladding thickness

Nominal Thickness Inches	Nominal Thickness Millimeters	Nominal Cladding Thickness Per Side % of Thickness	Average Cladding Thickness Per Side % of Thickness Minimum
0.010 thru 0.062	0.25 thru 1.57	5	4
0.063 and above	1.60 and above	2.5	2

3.5 Response to Temper Conversion (T62) (see 3.8)

When specified, product in the T4 temper after precipitation heat treatment to the T62 temper (refer to ANSI H35.1/H35.1M), in accordance with AMS2772, shall have the properties shown in Table 5.

Table 5A - Minimum tensile properties, inch/pound units

Temper	Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
-T62	0.010 thru 0.062	60.0	47.0	5
	0.063 thru 0.128	62.0	49.0	5

Table 5B - Minimum tensile properties, SI units

Temper	Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
-T62	0.25 thru 1.57	414	324	5
	1.60 thru 3.25	427	338	5

3.6 Response to Temper Conversion (T72) (see 3.8)

When specified, product in the T4 temper after precipitation heat treatment to the T72 temper (refer to ANSI H35.1/H35.1M) in accordance with AMS2772, shall have the properties shown in Table 6.

Table 6A - Minimum tensile properties, inch/pound units

Temper	Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
-T72	0.010 thru 0.062	56.0	43.0	5
	0.063 thru 0.128	58.0	45.0	5

Table 6B - Minimum tensile properties, SI units

Temper	Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
-T72	0.25 thru 1.57	386	296	5
	1.60 thru 3.25	400	310	5

3.7 Mechanical property requirements for product outside the range covered by Tables 3, 5, and 6 shall be agreed upon between the purchaser and producer and reported per 4.4.1 (see 8.5).

3.8 The tensile properties in Tables 3 and 5 were taken directly from QQ-A-250/5F Amendment 2 (AMS-QQ-A-250/5A) and have not been independently verified by AMS statistical procedures.

3.9 Quality

The product, as received by the purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.