



AEROSPACE MATERIAL SPECIFICATION	AMS-C-7438	REV. A
	Issued 1999-06 Reaffirmed 2006-01 Revised 2014-07	
Superseding AMS-C-7438		
Core Material, Aluminum, for Sandwich Construction		FSC 5680

RATIONALE

AMS-C-7438 and its predecessor MIL-C-7438G, Amendment 1 form the basis for all aluminum core specifications worldwide. These specifications are included by reference in most aluminum core specifications, and mechanical properties are consistent throughout the industry. Revision A of AMS-C-7438 removes requirements which are deemed no longer relevant or necessary, and improves clarity of requirements which remain relevant to the industry. Grade C core materials (Alloy 2024-T81) have been removed because 2024 foil is considered unavailable for the foreseeable future.

NOTICE

The initial release of this document has been taken directly from U.S. Military Specification MIL-C-7438G, Amendment 1 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. This document replaces MIL-C-7438G, Amendment 1. Any part numbers established by the original specification remain unchanged. The current revision of this document includes changes that were not a part of MIL-C-7438G, Amendment 1.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

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<http://www.sae.org/technical/standards/AMS-C-7438A>

1. SCOPE

1.1 Scope

This specification covers treated aluminum core material for structural sandwich construction.

1.2 Classification

1.2.1 Aluminum core material for sandwich construction shall be furnished in the following grades, as specified (See 6.3.1 and 6.5):

Grade	Description
B	For exposure up to 350 °F (See 3.2.1.1).

1.2.2 Aluminum core material for sandwich construction shall be furnished in the following classes, as specified (See 6.3.1 and 6.5):

Class	Description
1	High corrosion resistance (See 3.2.2).
2	Standard corrosion resistance (See 3.2.2).

1.2.3 Aluminum core material for sandwich construction shall be furnished in the following types, as specified (See 6.3.1 and 6.5):

Type	Description
N	Non-perforated (See 3.3.2).
P	Perforated (See 3.3.2).
HP	Highly Perforated (See 3.3.2).

2. REFERENCES

2.1 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.

2.1.1 SAE Publications

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

AMS-A-81596 Aluminum Foil for Sandwich Construction

AMS-STD-401 Sandwich Construction and Core Materials, General Test Methods

AMS-QQ-A-250/4 Aluminum Alloy 2024, Plate and Sheet

AMS-QQ-A-250/5 Aluminum Alloy Alclad 2024, Plate and Sheet

2.1.2 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada), 001-800-514-1564 (Mexico), or +1-414-272-8575 (all other locations), www.asq.org.

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

2.1.3 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 B 117 Salt Spray (Fog) Testing

ASTM C 366 Measurement of Thickness of Sandwich Cores

ASTM D 3951 Commercial Packaging, Practice for

ASTM D 1974 Standard Practice for Method of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers

ASTM D 5118 Standard Practice for Fabrication of Fiberboard Shipping Boxes

ASTM D 5168 Standard Practice for Fabrication and Closure of Triple Wall Corrugated Fiberboard Containers

ASTM D 6251 Standard Specification for Natural Wood-Cleated Panelboard Shipping Boxes

2.1.4 U.S. Government Publications

Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6396, <http://quicksearch.dla.mil/>.

MIL-STD-2073-1 Standard Practice for Military Packaging

A-A-203 Paper, Kraft, Untreated

MIL-DTL-17667 Paper, Wrapping, Chemically Neutral (Non-Corrosive)

2.1.5 Order of precedence

In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

2.2 Definitions

The following definitions apply to terms that are uncommon or have special meaning as used in this specification:

2.2.1 **BLOCK:** A volume of honeycomb material that is created during node adhesive bonding. This term may be used for material that has or has not been expanded to its nominal cell size and density. Slices of various thicknesses are cut from blocks.

2.2.2 **BUCKLED CELL WALLS:** Permanent buckling or crushing in the thickness direction of greater than 0.010 inch. Also called columnar buckling or columnar failure.

2.2.3 **DOUBLE FOILS:** A stacking misalignment defect that can occur for honeycomb that is manufactured using a corrugation process or an expansion process. See Figure 1 for a depiction of this defect. This defect is comprised of two or more adjacent ribbons of foil.

2.2.4 **FLAKES:** Excess metal attached to foil edges which do not interfere with core thickness measurement. Also called foil edge burrs.

2.2.5 **LOOSE METAL:** Loose pieces of honeycomb or foil.