



AEROSPACE MATERIAL SPECIFICATION

AMS-C-81986™

Issued 1998-07
Reaffirmed 2022-08

Core Material, Plastic Honeycomb, Nylon Paper Base
for Aircraft Structural Applications

RATIONALE

AMS-C-81986 has been reaffirmed to comply with the SAE Five-Year Review policy.

NOTICE

This document has been taken directly from U.S. Military Specification MIL-C-81986, Amendment 1, and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-C-81986, Amendment 1. Any part numbers established by the original specification remain unchanged.

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.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products list (QPL's) has not been adopted by SAE and is not part of this technical report.

1. SCOPE:

1.1 Scope:

This specification covers the requirements for nonperforated nylon paper base plastic honeycomb core material for aircraft structural applications, including exterior parts such as radio and radar antenna housings.

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2022 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

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
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AMSC81986

For more information on this standard, visit
<https://www.sae.org/standards/content/AMSC81986/>

Documents

Document Sharing Hub

2. APPLICABLE DOCUMENTS:

The following publications, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

2.1 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-P-116 Preservation, Methods of

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-401 Sandwich Constructions and Core Materials, General Test Methods

PPP-B-585 Box, Wood, Wirebound

PPP-B-591 Box, Fiberboard, Wood-Cleated

PPP-B-636 Box, Fiberboard

2.2 National Standards Association, Inc.:

Available from the National Standards Association, Inc., 1321 Fourteenth Street NW, Washington, D.C. 20005.

ATC Report No. Electrical Test Procedures for Radomes and Radome
ARTC-4 Materials

3. REQUIREMENTS:

3.1 Preproduction sample:

When specified in the contract or order (see 4.4.2 and 6.2), preproduction samples of nylon paper core material of designated density, cell size dimension, resin bond, and core cell configuration shall be manufactured using the methods and processes proposed for the production lot. These samples are for the purpose of determining that the manufacturer's production methods and processes will produce core material that will meet the requirements of this specification. These samples shall be inspected as specified in Section 4 and shall be submitted as directed by the procuring activity for examination and approval.

- 3.1.1 Material and property control: Prior to production, material and property controls shall be established for the core cell size, type and quantity of the stabilizing resin, adhesive, and bonding methods. The control shall be continued until the application of resin and adhesive, assembly of the materials and curing of the adhesive practices have been established to produce core materials conforming to this specification. When processing practices have been so established, the production shall not be changed without demonstrating to the satisfaction of the procuring activity that the change does not adversely affect the quality of the core material.

- 3.1.1.1 Preproduction sampling and testing (see 3.1) shall be required whenever one or more changes are made with the processing of the core material, adhesive, bonding, design or fabrication techniques.

3.2 Materials:

The materials comprising the core shall conform to the applicable specifications and shall be as specified herein. Materials, which are not covered by applicable specifications, or which are not specifically described herein, shall be subjected to the approval of the procuring activity.

- 3.2.1 Paper: The fiber paper shall be composed of an aromatic polyamide polymer (nylon) in the form of short fibers (floc), bonded together with small fibrous binder particles (fibrils) of the same material, and shall contain no extraneous diluents. The paper shall not be perforated.
- 3.2.2 Resin: The resin system used to coat the paper, or for node bonding, shall be resistant to mildew and shall not be corrosive to metals. Node bonding shall be accomplished with the same resin used for coating, or with a compatible resin adhesive.

3.3 Configuration:

The core material shall consist of thin nylon paper base sheets bonded together to form cells approximately hexagonal in shape (See Figure 1).

3.4 Sizes:

The material shall be furnished in blocks or slices, as specified by the procuring activity. The dimensions and dimensional tolerances for the blocks or slices shall be as specified by the procuring activity.

3.5 Cure:

The honeycomb core material shall be fully cured. When specified, the material may be furnished in a partially cured state to afford better conformability when used in curved sections. In this case the material shall be fully cured in accordance with the manufacturer's instructions prior to testing.

3.6 Bond or slicing test:

The node bonds of the honeycomb core material shall be sufficiently strong so as to meet the requirements specified herein when machined in accordance with manufacturer's recommendations.

3.7 Cell wall edges:

The honeycomb cell wall edges on the faces of the sliced core shall be in a condition as specified by the procuring activity, suitable for forming a good bond, as when wet-laminated to glass fabric base plastic laminate.