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# DEPARTMENT OF DEFENSE HANDBOOK

# COMPOSITE MATERIALS HANDBOOK

## VOLUME 2. POLYMER MATRIX COMPOSITES MATERIALS PROPERTIES

**This handbook is for guidance only. Do not cite this document as a requirement.**

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# FOREWORD

1. This Composite Materials Handbook Series, MIL-HDBK-17, are approved for use by all Departments and Agencies of the Department of Defense.

2. This handbook is for guidance only. This handbook cannot be cited as a requirement. If it is, the contractor does not have to comply. This mandate is a DoD requirement only; it is not applicable to the Federal Aviation Administration (FAA) or other government agencies.

3. Every effort has been made to reflect the latest information on polymer (organic), metal, and ceramic composites. The handbook is continually reviewed and revised to ensure its completeness and currentness. Documentation for the secretariat should be directed to: Materials Sciences Corporation, MIL-HDBK-17 Secretariat, 500 Office Center Drive, Suite 250, Fort Washington, PA 19034.

4. MIL-HDBK-17 provides guidelines and material properties for polymer (organic), metal, and ceramic matrix composite materials. The first three volumes of this handbook currently focus on, but are not limited to, polymeric composites intended for aircraft and aerospace vehicles. Metal matrix composites (MMC) and ceramic matrix composites (CMC), including carbon-carbon composites (C-C) are covered in Volume 4 and Volume 5 , respectively.

5. This standardization handbook has been developed and is being maintained as a joint effort of the Department of Defense and the Federal Aviation Administration.

6. The information contained in this handbook was obtained from materials producers, industry, reports on Government sponsored research, the open literature, and by contact with research laboratories and those who participate in the MIL-HDBK-17 coordination activity.

7. All information and data contained in this handbook have been coordinated with industry and the U.S. Army, Navy, Air Force, NASA, and Federal Aviation Administration prior to publication.

8. Copies of this document and revisions thereto may be obtained from the Document Automation and Production Service (DAPS), Bldg. 4D, (DODSSP/ASSIST), 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.

9. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Research Laboratory, Weapons and Materials Research Directorate, ATTN: AMSRL-WM-MA, Aberdeen Proving Ground, MD 21005-5069, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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**SUMMARY OF CHANGES IN REVISION MIL-HDBK-17-2F**

| Chapter | Section | Title | Change type |
|---|---|---|---|
| **1** | 1.4 | Presentation of Data | revision |
| | 1.4.3 | Individual data tables-normalized data | revision |
| | 1.4.4 | Individual data tables-unnormalized data | new |
| | 1.4.5 | Individual data tables-notched laminate data | new |
| | 1.4.6 | Individual data tables-bearing data | new |
| | 1.4.7 | Individual data tables-bearing/bypass data | new |
| **4** | 4.2.27 | T300 3k/EA 9396 8-harness satin fabric | new |
| | 4.2.28 | AS4 6k/PR500 5-harness satin fabric | new |
| | 4.2.29 | T650-35 12k/997 unidirectional tape | new |
| | 4.2.31 | IM7 6k/PR500 4 harness satin fabric | new |
| | 4.2.32 | T650-35 3k/976 8-harness satin fabric | new |
| | 4.2.33 | T700S 12k/3900-2 plain weave fabric | new |
| | 4.2.34 | T800H 12k/3900-2 unidirectional tape | new |
| | 4.2.35 | T650-35 3k/976 plain weave fabric | new |
| | 4.4.5 | IM7 6k/5250-4 RTM 4-harness satin fabric | new |
| | 4.4.6 | T650-35 3k/5250 8-harness satin fabric | new |
| | 4.4.7 | T650-35 3k/5250-4 plain weave fabric | new |
| | 4.10 | CARBON-CYANATE ESTER COMPOSITES | new |
| | 4.10.1 | M55J 6k/954-3 unidirectional tape | new |
| **6** | 6.2.4 | E-Glass 7781/EA 9396 8-harness satin weave | new |