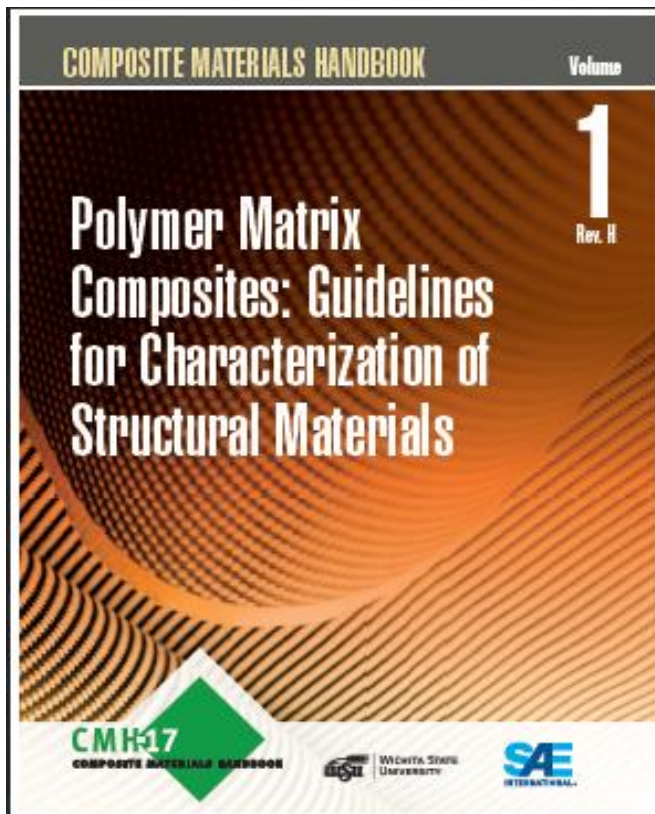


SAE BOOKS

Composite Materials Handbook (CMH) Volumes 1-6

The Composite Materials Handbook, referred to by industry groups as CMH-17, is a six-volume engineering reference tool that contains over 1,000 records of the latest test data for polymer matrix, metal matrix, ceramic matrix, and structural sandwich composites. CMH-17 provides information and guidance necessary to design and fabricate end items from composite materials. It includes properties of composite materials that meet specific data requirements as well as guidelines for design, analysis, material selection, manufacturing, quality control, and repair.



CMH-17: Polymer Matrix Composites

New Revision (H) to
Volume 1 Handbook

The first volume of the CMH-17 six-volume set contains guidelines for determining the properties of polymer matrix composite material systems and their common parts – including test planning, test matrices, sampling, conditioning, data reporting, and other related topics. The background information found in Vol. 1 guides composite specialists and materials managers as they test new integrations, as well as assists researchers as they write original work.

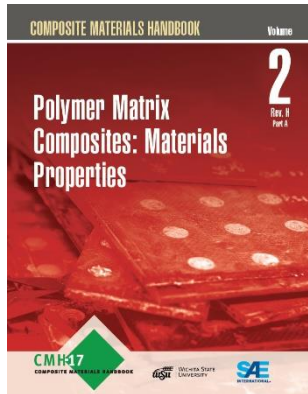
The changes to Vol. 1 Revision H include updated roadmaps for use of Volumes 1 – 3 as well as complete chapter revisions for Guidelines for Property Testing of Composites, Matrix Characterization, Prepreg Material Characterization, Structure Element Characterization, and Evaluation of Reinforcement Fibers. New additions include High Load Rate and Dynamic Testing and Test Method Induced Variability in Comparing Two Groups.

Use the Handbook to

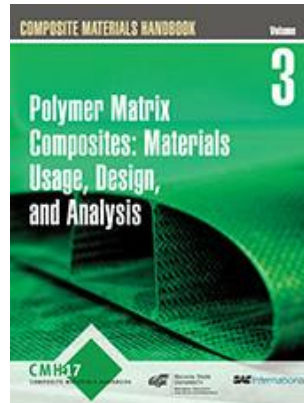
- Understand how materials property data should be obtained
- Reference the specific requirements for publication of material data in CMH-17
- Apply industry best-practices to testing procedures
- Comply with FAA Sec. 329. performance-based safety standards

Composite Material Handbook 6-Volume Set includes:

- Volume 1: Guidelines for Characterization of Structural Materials
- Volume 2: Materials Properties
- Volume 3: Materials Usage, Design, and Analysis
- Volume 4: Metal Matrix Composites
- Volume 5: Ceramic Matrix Composites
- Volume 6: Structural Sandwich Composites



The second volume of this six-volume compendium contains statistically-based data for polymer matrix composites that meets specific CMH-17 population sampling and data documentation requirements, covering material systems of general interest. Selected historical data from previous versions of the handbook that do not meet current data sampling, test methodology, or documentation requirements, but that still are of potential interest to industry are also included in this volume.



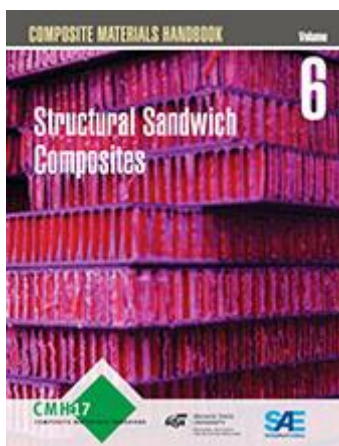
The third volume of this six-volume compendium provides methodologies and lessons learned for the design, analysis, manufacture, and field support of fiber-reinforced, polymeric-matrix composite structures. It also provides guidance on material and process specifications and procedures for using the data that is presented in Volume 2. The information provided is consistent with the guidance provided in Volume 1, and is an extensive compilation of the current knowledge and experiences of engineers and scientists from industry, government, and academia who are active in composites.



The fourth volume of this six-volume compendium includes properties on metal matrix composite material systems for which data meeting the specific requirements of the handbook are available. In addition, it provides selected guidance on other technical topics related to this class of composites, including material selection, material specification, processing, characterization testing, data reduction, design, analysis, quality control, and repair of typical metal matrix composite materials.



The fifth volume of this six-volume compendium publishes technical guidance and properties on ceramic matrix composite material systems. The selected guidance on technical topics related to this class of composites includes material selection, processing, characterization, testing, data reduction, design, analysis, quality control, application, case histories, and lessons learned of typical ceramic matrix composite materials. Volume 5, which covers ceramic matrix composites, supersedes MIL-HDBK-17-5 of June 17, 2002..



The last volume of this six-volume compendium is an update to the cancelled Military Handbook 23, which was prepared for use in the design of structural sandwich polymer composites, primarily for flight vehicles. The information presented includes test methods, material properties, design and analysis techniques, fabrication methods, quality control and inspection procedures, and repair techniques for sandwich structures in military and commercial vehicles.