COMPOSITE MATERIALS HANDBOOK

Volume

1

Polymer Matrix Composites: Guidelines for Characterization of Structural Materials

CMH-17

COMPOSITE MATERIALS HANDBOOK

WSU Wichita State University

National Institute for Aviation Research

SAE International

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Volume 1 of 6
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COMPOSITE MATERIALS HANDBOOK

VOLUME 1. POLYMER MATRIX COMPOSITES GUIDELINES FOR CHARACTERIZATION OF STRUCTURAL MATERIALS

WICHITA STATE UNIVERSITY
NATIONAL INSTITUTE FOR AVIATION RESEARCH

SAE International

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Rev. H

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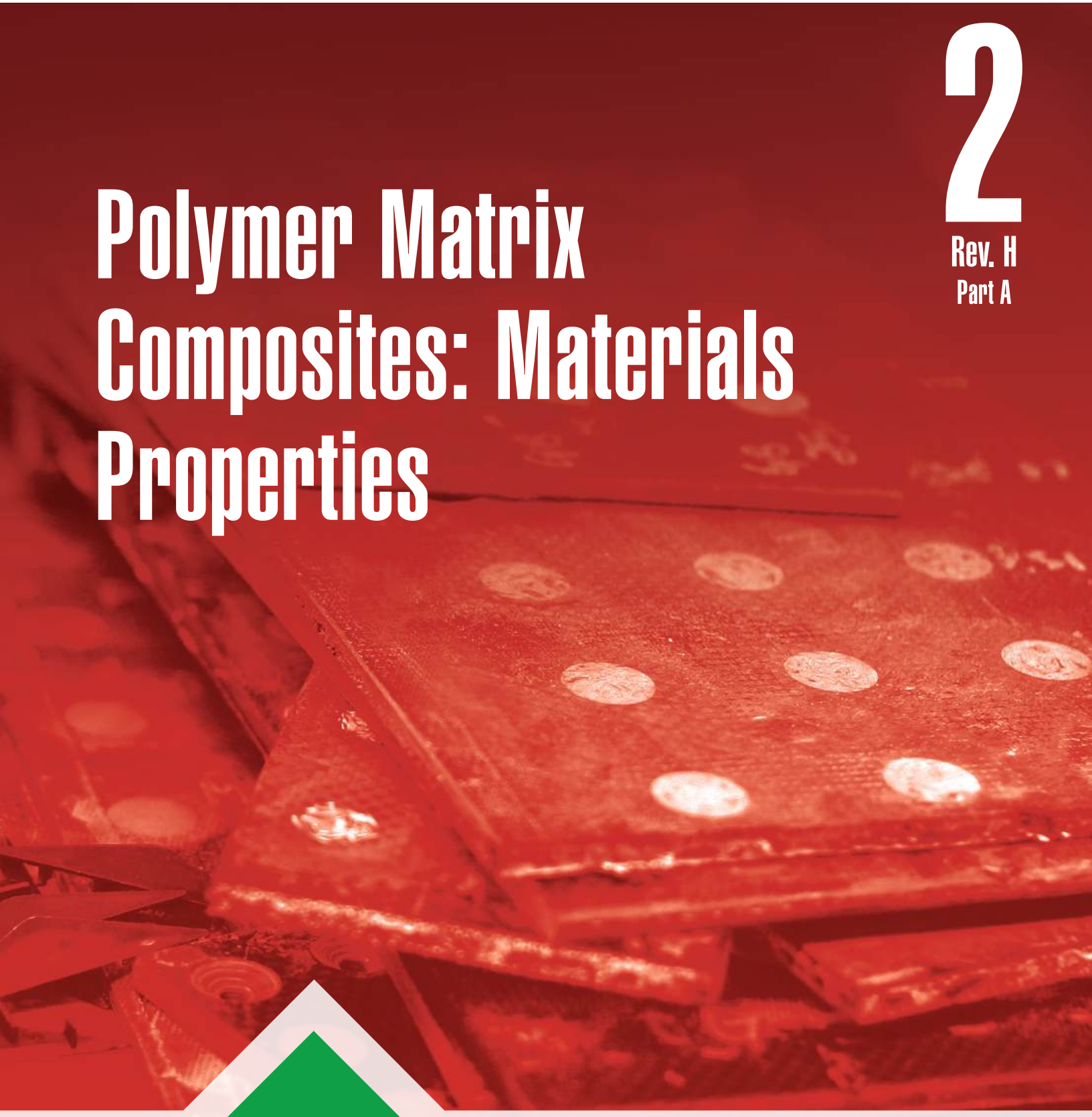

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VOLUME 2. Rev. H/Part A

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	1.8	Definitions	Revision and new/Salt Lake City (3/2015 and 3/2017)
	1.10 [Volume 1, Section 2.4]	Data Reduction and Documentation	Reorganization/Wichita (12/2013)
	1.11 [Volume 1, Section 2.5]	Material Testing for Submission of Data to CMH-17	Reorganization/Wichita (12/2013)
	1.12 [Volume 1, Section 2.3.7]	Data Substantiation for Use of Basis Values from CMH-17 or Other Large Databases	Reorganization/Wichita (12/2013)
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	2.2.1.4	IM7 12k/8552 Unidirectional Tape	New/Supplemental YPs (3/2015)
	2.2.1.5	T650 6k/5320 Unidirectional Tape	New/Wichita (10/2015)
	2.2.1.6	IM7 12k/MTM45-1 Unidirectional Tape	New/Salt Lake City (3/2015)
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	2.2.2.5	AS4 3k/8552 Plain Weave Fabric	New/Wichita (12/2013)
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	2.2.2.10	T650/EP2202 Plain Weave Fabric	New/Salt Lake City (3/2017)

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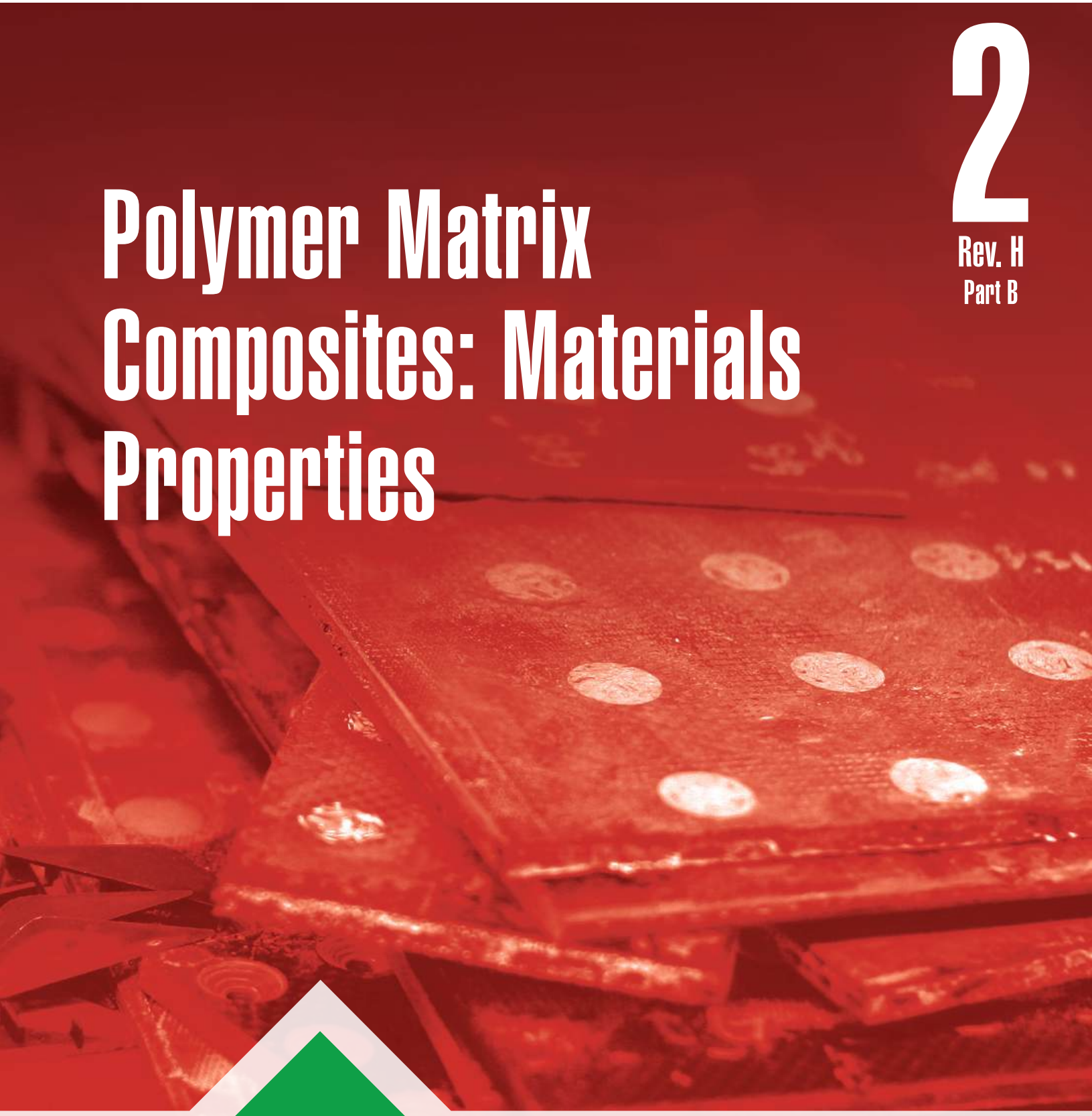

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	4.2.1.1	S-2 Glass/BT250E-6 Unidirectional Tape	New/St. Paul (8/2016)
	4.2.2.2	6781 S-2 Glass/MTM45-1 8-Harness Satin Weave Fabric	New/Miami (8/2014)
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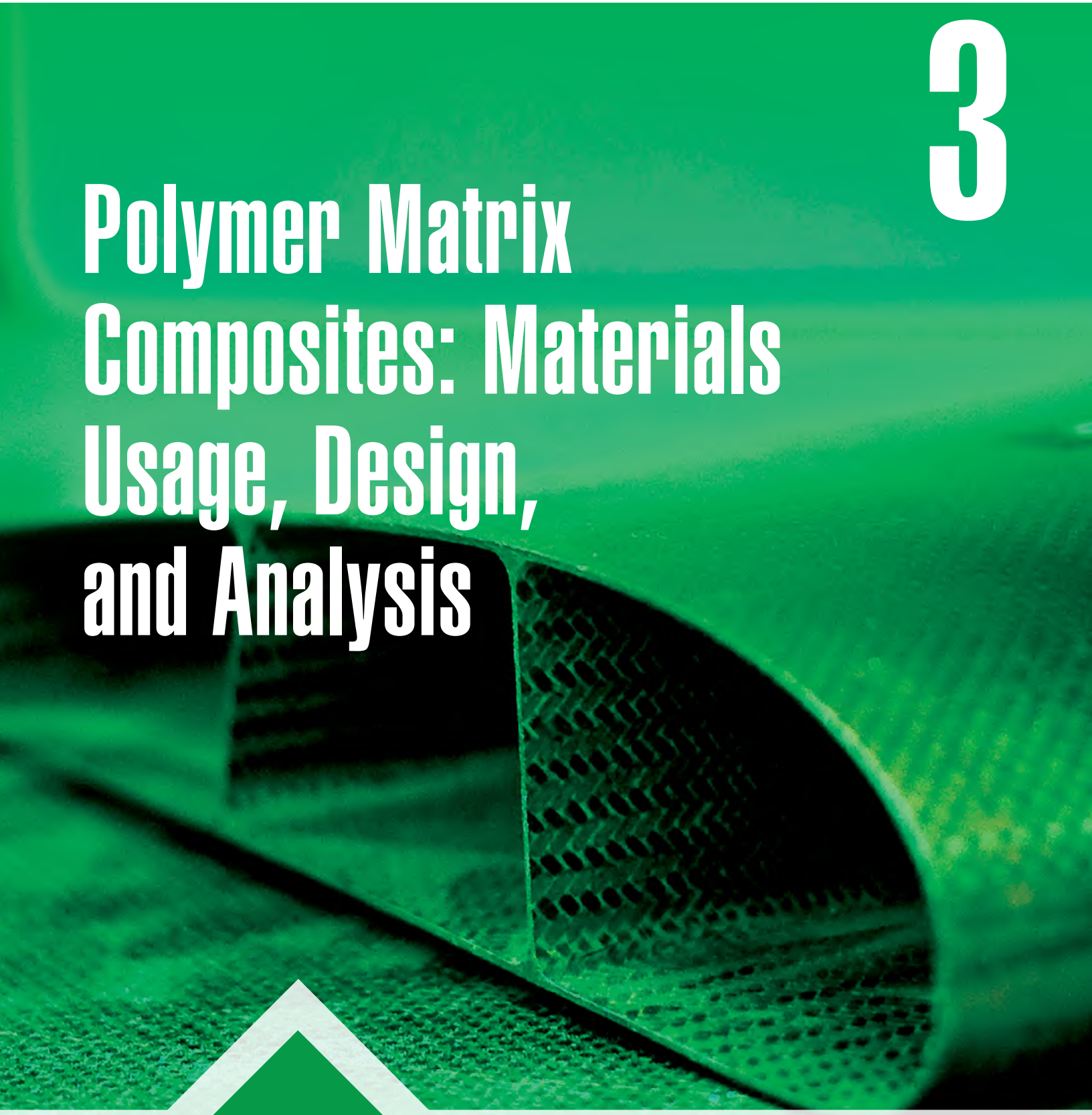
Polymer Matrix Composites: Materials Usage, Design, and Analysis



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VOLUME 3. POLYMER MATRIX COMPOSITES MATERIALS USAGE, DESIGN, AND ANALYSIS

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Volume 4

Metal Matrix Composites

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Volume

5

Ceramic Matrix Composites

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VOLUME 5. CERAMIC MATRIX COMPOSITES

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The Composite Materials Handbook will be the authoritative worldwide focal point for technical information on composite materials and structures.

Goals and Objectives to Support CMH-17 Mission

- To periodically meet with experts from the field to discuss critical technical issues for composite structural applications, with an emphasis on increasing overall product efficiency, quality and safety.
- To provide comprehensive, practical engineering guidance that has proven reliable for the design, fabrication, characterization, test and maintenance of composite materials and structures.
- To provide reliable data, linked to control of processes and raw materials, thereby being a comprehensive source of material property basis values and design information that can be shared within the industry.
- To provide a resource for composite material and structure education with examples, applications and references to supporting engineering work.
- To establish guidelines for use of information in the Handbook, identifying the limitations of the data and methods.
- To provide guidance on references to proven standards and engineering practices.
- To provide for periodic updates to maintain the all-inclusive nature of the information.
- To provide information in formats best-suited for user needs.
- To serve the needs of the international composites community through meetings and dialogue between member industries, which use teamwork and the diverse member engineering skills to provide information for the handbook.

Notes

1. 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 it is complete and current.

2. CMH-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), ceramic matrix composites (CMC), and sandwich composites are covered in Volumes 4, 5, and 6, respectively.

3. The information contained in this handbook was obtained from materials producers, industry companies and experts, reports on Government sponsored research, the open literature, and by contract with research laboratories and those who participate in the CMH-17 coordination activity. The information in this handbook has undergone vigorous technical review and was subject to membership vote.

4. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: CMH-17 Secretariat, Wichita State University, 1845 Fairmount, Wichita, KS 67260, by letter or email, info@cmh17.org.

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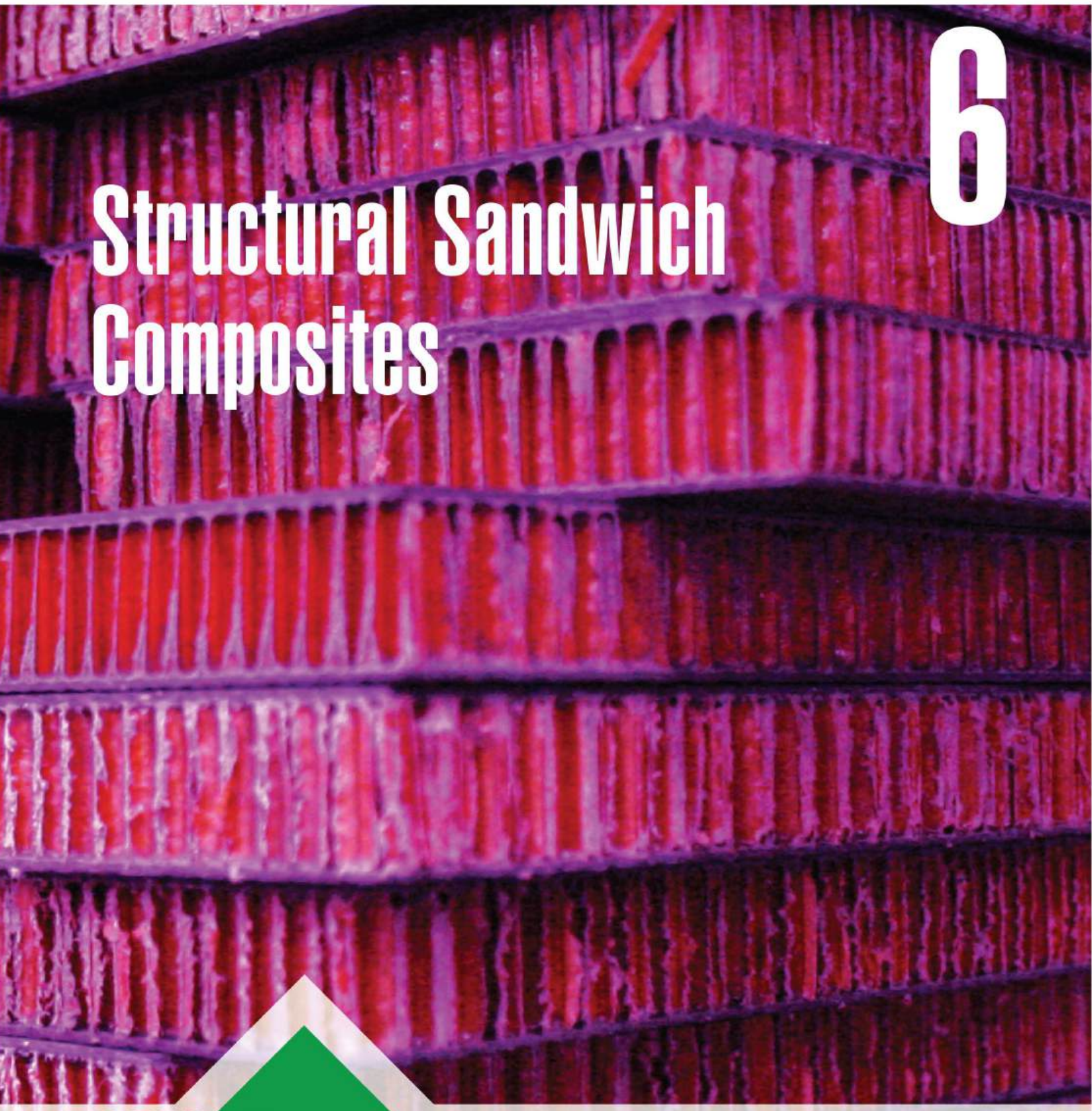

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COMPOSITE MATERIALS HANDBOOK

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July 2013

COMPOSITE MATERIALS HANDBOOK

VOLUME 6. STRUCTURAL SANDWICH COMPOSITES

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FOREWORD

The Composite Materials Handbook, CMH-17, provides information and guidance necessary to design and fabricate structural components from composite materials. Its primary purposes are a) the standardization of engineering data development methodologies related to testing, data reduction, and data reporting of property data for current and emerging composite materials, b) guidance on material and process specifications and procedures for utilization of the material data presented in the handbook, and c) methodologies for the design, analysis, certification, manufacture, and field support of composite structures. In support of these objectives, the handbook includes composite materials properties that meet specific data requirements. The Handbook therefore constitutes an overview of the field of composites technology and engineering, an area that is advancing and changing rapidly. As a result, the document will be continually revised as sections are added or modified to reflect advances in the state-of-the-art.

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