

1.1 Technical.

1.1.1 Scope. The scope for the handbook is all polymer matrix composites (with continuous fiber reinforcement) in all applications. Wherever possible, the scope of a section should be as wide as reasonable based on the topic. In other words the discussion should not be limited to thermoplastic matrix materials or carbon/epoxy in aircraft applications. If necessary to limit the scope, it is better to present the information with a general introduction to the technical approach and an example for the more limited scope.

1.1.2 Level of requirements. Requirements for handbook data and requirements for all other uses of handbook procedures (test matrices, test methods, documentation, statistical methods) should be clearly distinguished. Three levels of information are generally used for the handbook. The following nouns and verb/adjectives are preferred.

	Noun	Verb/adjective
STRONG - mandatory, required		
Handbook	Requirement	required, shall
Other uses	---	---
MEDIUM - recommended, preferred		
Handbook	Recommendation	recommended, accepted, should
Other uses	Recommendation	recommended, should
WEAK - suggested, optional		
Handbook	---	---
Other uses	Suggestion	suggested, may

Handbook levels of requirements are generally stronger than those for other uses. Note that there are very few, if any, requirements for any other purpose that approval of handbook data. Accepted for handbook data is used where there are several alternatives that are acceptable; anything else is not or requires additional consideration.

1.1.3 Material systems. Material systems are identified in text by *{fiber}/{matrix}*, e.g., carbon/epoxy. Carbon, rather than graphite, is used. Generic material identification is used unless the information is specific to a particular product. Product identification is used as little as possible and generally as an example.

1.1.4 Test methods and specifications. The first time a document is mentioned in a section, the organization shall be included and a full reference cited. Dates shall be included when a particular revision is considered. An example of when this is appropriate is a section of Volume 1, Chapter 6, where the strengths and weaknesses of a revision are discussed. Here a specific revision is considered and the date should be included. In the table listing which test methods can be used to have data accepted for the handbook, the date should not be included since the revision that was current when the test method was performed should be the one that was used.

1.1.5 Units. Volumes 1 and 3 include dual units - U.S. customary units followed by S.I. units in parentheses. The same level of precision should be used for both.

Example: 1.0 in. (25 mm) not 1 in. (25.4 mm)

Conversions are included in the first chapter of each volume. Units are generally abbreviated. The following units are commonly used:

Parameter	U.S. Customary	S.I.	Metric
Strength, stress	ksi	MPa	
Modulus	Msi	GPa	
Length	in.	mm	cm
Density			g/cm ³

To discriminate between temperature and changes in temperature, the handbook uses °F (°C) for temperature and F° (C°) for changes in temperature.

1.1.6 Preferred terms. The following terms are preferred:

Preferred	Deprecated
Basis value OR design value	Allowable
Carbon	Graphite
Cured ply thickness	Per ply thickness
Room temperature ambient (RTA)	
Short beam strength	Short beam shear
Matrix	(As more generic than resin)

1.1.7 Technical terms to be used with care. The following list of words have technical meanings in the handbook. They should not be used in their common (nontechnical) sense unless the context clearly eliminates the technical interpretation. Other forms of the same word, such as normally, significance, and so on, should also be avoided.

Technical term	Common substitution
Normal	Common, general, usual, prevalent
Significant	Important, meaningful
Typical	Common, general usual

1.1.8 Copyright releases. Prior to the release of any new sections of the handbook, the Secretariat requests copyright releases from section authors. This is the point at which an author should identify any material in the section which is copyrighted by someone else. This includes text, figures, tables, and so on.

1.2 Editorial The Secretariat handles much of the editorial formatting and so on. Areas to highlight are figures and references.

1.2.1 Text. Text can be submitted in a variety of electronic forms. This handbook is maintained in WordPerfect, files from several other word-processing programs have also been used. Word processing files have been exchanged on diskette and via email in an encoded format. Italics may be used for emphasis sparingly. Underlining is being reserved for marking changes. (Current underlined text in the handbook is being converted to italics.)

1.2.2 Sections. Sections are permitted but not required to have text associated with them. In other words, a section number and title may be used to group several subsections without having any text in the section itself.

1.2.3 Numbering. All figures, equations, tables, and references are numbered by letter within a section, e.g., 1.2.3(a), 1.2.3(b), and so on. If there is only one of a given type in a section, a letter is not used, e.g., 1.2.3. All letters, including i and o, are used. If more than 26 references are used in a single section, the letters used are as follows: (a), (b), ... (y), (z), (aa), (ab), and so on. All identification of a specific figure, equation, table, or reference is by the full word with initial capital letter and the number, such as Figure 1.2.4, Equation 8.3.7(a), Table 6.6.2(c), and Reference 5.5.7(aa). Other identification without the number is not capitalized, such as this figure, the previous equation, the table that follows. *It is not required that authors use this system when submitting a draft section.* However, whatever system is used should be consistent.

1.2.4 Figures Figures that will be included in Volume 1 or 3 should have dual units. In x-y plots, units are generally identified in parentheses following or under the axis variable. The left and bottom axes are U.S. customary, and the right and top are S.I. In drawings, dimensions are often given in U.S. customary followed by S.I. in parentheses with a note "All dimensions are inches (millimetres)." At the present time, fastener dimensions are presented in their original units.

Figures may be submitted in a number of electronic formats. They are incorporated into the WordPerfect handbook files in PCX format. Figures in the handbook are generally presented at full page width. For authors who are concerned with creating a draft that matches MIL-HDBK-17 formatting, references to a specific figure in text are shown as Figure 1.2.4(a) and caption formats are demonstrated by example in Figures 1.2.4(a) and (b).

<p>FIGURE.1.2.4(a) <i>One-line caption (centered).</i></p>
<p>FIGURE. 1.2.4(b) <i>Captions that take more than one line have 1/2-inch margins with the caption text indented from the figure number.</i></p>

1.2.5 Tables. Tables in Volumes with dual units should have dual units. Based on the amount of space available, these are presented in separate columns or in parentheses in the same column. In most cases, tables are numbered and referred to by number (Rather than "the following table"). Tables in examples are not numbered. Table captions use the same formats as figure captions.

1.2.6 Equations. Symbols used should be consistent with those in Volume 1, Sections 1.6 and 8.5.1.1. Any differences between these symbols and common practice should be noted, e.g., if compression strengths must be negative.

1.2.7 Fractions. All proper decimal fractions should have a zero before the decimal point.

1.2.8 References. It is helpful if any references are submitted at the time of Coordination Group review (yellow pages) in one of the following formats. What is *most* important is that all of the information be supplied. References are cited in the text as a single reference (Reference 1.2.8(a)), a series of references (Reference 1.2.8(b) - (e)), a group of references (Reference 1.2.8(a), (c), and 1.2.9) or a direct reference, such as, For more information, see Reference 1.2.8(f).

Book

1.2.8(a) Author, I. M., *Book Title*, [edition], Publisher, Publisher's city, Year[, chapter, pages].

Journal Article

1.2.8(b) Author, I. M. and Doe, J. R., "Title of the Article," *Journal*, Vol. [Volume], [Month] Year, pp. First Page - Last Page.

Proceedings Article

1.2.8(c) Author, I. M., Smith, A. B., and Doe, J. R., "Title of the Article," *Title of Proceedings*, [Editor,] Vol. [Volume], Publisher/Publication Number, Year Published, pp. First Page - Last Page.

Conference Presentation (proceedings is not available).

1.2.8(d) Author, I. M., "Title of the Presentation," presented at the Conference Title, Location, Dates of Conference, Sponsoring Organization.

Report

1.2.8(e) Author, I. M. and Doe, J. R., "Title of the Article," Publishing Organization, Report Number, [Month] Year[, pp. First Page - Last Page].

Thesis/Dissertation

1.2.8(f) Author, I. M., J. R., "Title," Ph.D. Dissertation, University, [Month] Year[, pp. First Page - Last Page].

Test Methods

1.2.8(g) ASTM Test Method D 3039, "Title," Annual Book of ASTM Standards, Vol. 15.03, American Society for Testing and Materials, West Conshohocken, PA. - use for general use of test method. Add year after standard number only when comments refer to a specific version.

1.2.8(h) SACMA Recommended Method (SRM) 1, "Title," Suppliers of Advanced Composite Materials Association, Arlington, VA. - use for general use of test method. Add year after standard number only when comments refer to a specific version.

1.2.9 Cross-references. References to other sections in the handbook are presented in the same format as figures and tables, as shown in Section 1.2.3. Only if the section (or table, figure, equation, or reference) is in a different volume, is the volume given, for example, Volume 1, Section 5.7. (The definitions and units sections at the beginning of each volume are exceptions; the volume is cited in all cases for ease in maintaining identical sections in all volumes.)

1.2.10 Hyphenation. The following terms are hyphenated or not as shown, when included in handbook text. When they are quoted from another source, such as a test method title or reference, they are presented as in that source.

back-out
crossply
cross-section
in-plane
lay-up
multi-directional
stress/strain
unidirectional