
BOOK REVIEW

Delamination in Advanced Composites

Reviewed by Larry B. Ilcewicz, Principal engineer, Boeing Co., P.O. Box 3707, MS 6H-CF, Seattle, WA 98124

REFERENCE: Newaz, G. M., Ed., *Delamination in Advanced Composites*, Technomic Publishing Co., Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604, Telephone: 800-233-9936, FAX: 717-295-4538, 1991, ISBN: 87762-753-3, 500 pp., \$65.

This work consists of a compilation of 32 technical papers originally published in refereed journals for composite materials. With a few exceptions, the editor has done a good job in selecting papers representative of the vast literature published on the subject of delamination in composite materials. The book should be recommended as a reference for students involved in mechanics of materials studies for advanced laminated composites. Laboratory personnel interested in material characterization methods would also have some interest in the text. Most of the papers would only be of general interest to designers and structural analysts working in the industry.

In general, the book was found to have good print quality. The most notable exceptions related to the clarity of photos, tables, and graphs. Most photos lacked resolution. A limited number of tables and graphs had small print, making it difficult to decipher some results. Very few type errors were found.

The book is divided into three main sections: (1) Mechanics of Delamination, (2) Testing and Analysis, and (3) Delamination Toughness and Performance Issues. Papers in each section are

ordered chronologically. The editor has made some brief additions to the book including a forward, preface, introduction, and section summaries. The forward contains a list of additional references recommended by the editor for a broad understanding of composite delamination. Unfortunately, several key references were not included in the book or advised list. Short summaries at the start of each section highlight all papers but fail to give enough narrative to justify technically those papers selected or draw relationships between their findings.

The technical content of the book consists of a good balance of theoretical work on interlaminar stresses, fracture toughness test methods for controlled modes of delamination growth, and applications to the mechanics of composite specimen failure. Important theoretical papers on composite laminate interlaminar stresses and free edge effects were included. Experimental studies covered static, dynamic, fatigue, environmental, and time-dependent issues in detail. Papers involving continuous fiber laminates with both thermoset and thermoplastic matrices were included.

Despite the large number of pertinent papers included in the book, two key delamination issues received little attention. The theoretical mechanics section of the book was not tied to experimental work. Perhaps later editions will address this issue with the use of recent papers in which interlaminar normal and shear strains are measured. Similarly, future work on the effect of delamination on structural performance will be needed for the book to be more useful in practical engineering applications.