Advanced Materials by Design

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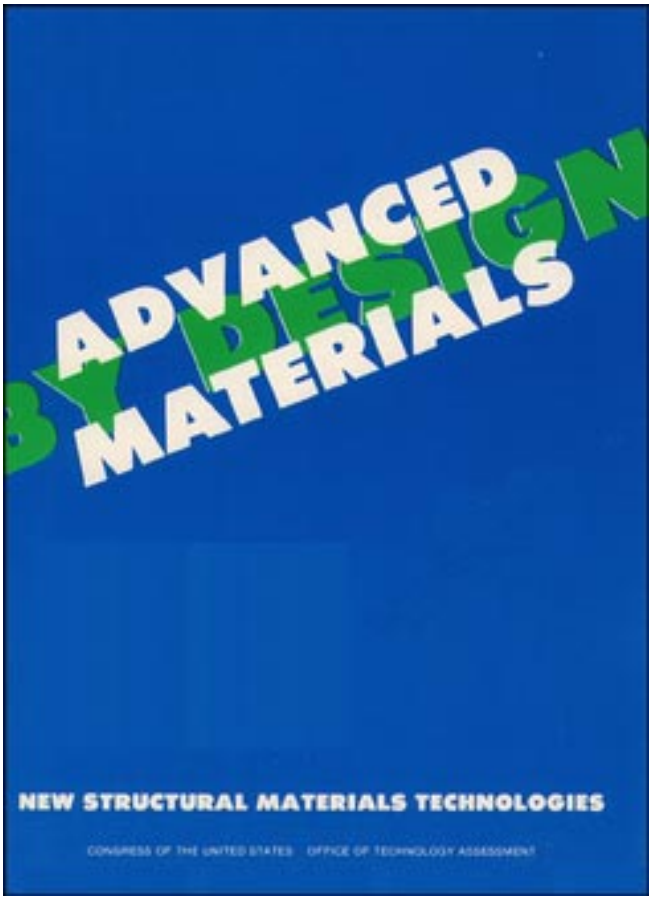

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Foreword

This assessment responds to a joint request from the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation to analyze the military and commercial opportunities presented by new structural materials technologies, and to outline the Federal policy objectives that are consistent with those opportunities.

New structural materials–ceramics, polymers, metals, or hybrid materials derived from these, called composites–open a promising avenue to renewed international competitiveness of U.S. manufacturing industries. There will be many opportunities for use of the materials in aerospace, automotive, industrial, medical, and construction applications in the next 25 years. This assessment addresses the impact of advanced structural materials on the competitiveness of the U.S. manufacturing sector, and offers policy options for accelerating the commercial utilization of the materials.

in recent years, several excellent studies have been published on both ceramics and polymer matrix composites. This assessment draws on this body of work and presents a broad picture of where these technologies stand today and where they are likely to go in the future. OTA appreciates the assistance provided by the contractors, advisory panel, and workshop participants, as well as the many reviewers whose comments helped to ensure the accuracy of the report.

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NOTE: OTA appreciates the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this assessment. OTA assumes full responsibility for the assessment and the accuracy of its contents.

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