

# Preface

In this edition, the reader will find the results of the latest research in the field of materials science and technologies for the synthesis and processing of structural materials. The widespread use of modern steels and alloys requires engineers and designers to have a detailed knowledge of properties of the materials used and an understanding of their behavior under various operating conditions.

Particular attention is paid to the study of the properties of modern materials used in medical practice.

Modern polymers and composite materials are widely used in modern mechanical engineering as substitutes for traditional structural materials and are widely used in engineering design practice. In some cases, they surpass traditional steels and alloys in their mechanical and tribological properties and allow the use of modern additive technologies in the production of machine parts and mechanisms.

Membranes and membrane technologies, protective coatings, and functional materials have recently been widely used in various industries and technologies. Thus, the use of membrane technologies in water purification and in the operation, for example, of fuel cells, is difficult to overestimate. The use of protective coatings can significantly extend the life cycle of various parts of equipment and improve production efficiency in general.

The modern concept of the development of the construction industry requires a special approach to the creation of modern building materials and structures. The main goal is the use of alternative binding materials and the optimisation of the load capacity of structural elements.

The book will be useful and interesting to a wide range of specialists in various branches of modern production and construction.