

# Preface

We live in a space and missile age. For efficient and powerful propulsion of missiles and space vehicles, advanced and environmentally friendly propellants are needed that are insensitive to shock, friction and impact. Rocketry is an important branch of science and technology in the modern age.

This book attempts to describe and discuss various subjects on science and technology for solid rocket propellants; including modern topics. We sincerely believe that some of the most important and advanced topics like shelf life prediction, advanced solid propellants, quality control and reliability, safety during process and handling *etc.* are a unique feature of this book. These topics are of vital importance to scientists/engineers working in research and development establishments, production agencies, quality control groups, academia *etc.* This is perhaps the first book of its kind dealing with a large number of important topics of relevance today. We are confident that the utility of this book will be of high order not only in our country but elsewhere as well.

The book contains 12 chapters. Major highlights include a detailed description of solid rocket propellant processing technologies, insulation, liner and inhibition systems, ignition system, combustion mechanisms *etc.* A detailed description of topics such as thrust vector control, structural integrity, rocket motor casing materials, catalyzed and platonized propellants *etc.* are also included. To the best of our knowledge, this information is not available as a single source in earlier publications.

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Solid Rocket Propellants: Science and Technology Challenges

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During the process of writing this book, we have taken valuable suggestions from a number of renowned scientists in India and abroad. We express our gratitude to all of them.

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