

Thermal Spray Processes,

By
Dr Ramnarayan Chattopadhyay
Reviewer : **Dr. V. S. Nistala**
"sam nistala" (UK)

I have been running a metal spraying job shop for the last 30 years. Often I needed answers to problems related to coating selection. I needed guidance when I wanted to establish new procedures and processes.

I find Dr Ramnarayan Chattopadhyay's book on advanced surface engineering very informative and useful in many practical ways.

The first chapter on basics of the four thermally assisted surface engineering processes: thermal spraying, welding, vapor phase deposition and diffusion is a very good introduction to this Technology. The following chapters describe the surface

engineering processes using advanced heat sources, such as, plasma, ion, electron, microwave, laser, solar, combustion, friction, induction, spark, arc, and their combinations.

If one needed to know about advanced thermal spraying processes, he could get all the information on plasma spraying, HVOF/HVIF or combustion, induction fusion of sprayed deposit in the relevant chapters. Comparison with competitive processes like EB-PVD and newer processes like laser spraying are explained clearly. Vital details on process/ procedures/coating properties are provided for most of them. Lists of references after every chapter enable one to search for further information. If one wanted to diversify into new areas, such as, vapor phase deposition, or welding, or diffusion processes, then valuable information is provided as a starting tool.

In addition to metals, modification of polymer or ceramic surfaces, are covered in two chapters. For QC of engineered surfaces using the advanced processes, chapter 19 provides comprehensive help. For life cycle assessment of surface engineered components the chapter 20 is an invaluable resource. Finally, there is a comprehensive subject index for quick reference.

With my four decades of experience, initially with leading organizations/institutions, and finally running a successful business in UK and India, I strongly recommend this book to all those engaged in surface engineering activities. I have a Ph.D. in Metallurgy and would recommend this book as a starting point for research students wishing to explore new frontiers.
Dr. Sam Nistala

Military Metallurgy

By
Alistair Doig
Reviewer : **Mr. R. Ravi**
Maney for The Institute of Materials.
152 pp 2002, Maney Publishing, London

This is a unique book in the sense that it attempts to give an insight into the materials that are used in army or defense applications. Rarely will you find a book like this which is totally devoted to this topic. The author has vast experience in Royal College of Military Sciences and he has brought out the same very interestingly in this book. As he himself writes this book is supposed to be informative and also entertaining rather than rigorously academic in its approach.

The book has twelve chapters and each one deals with a specific topic. Beginning with a brief introductory chapter on metallurgy the book goes on

to topics like Cartridges, Steel shells, Steel gun barrels, Penetrators, Projectiles, MBTs, Bailey Bridges, Al alloys for Armoured vehicles etc. Each Chapter deals with the materials, its uniqueness, its metallurgy in a lucid manner.

Do you know why most military hardware is metallic? The book answers this. The author points out that even through polymeric, Kevlar materials have found some applications, still the major equipments are made of metallic materials because of their superior toughness.

This book gives very intricate details of several components including their operational characteristics. The choice of a specific alloy for an application has been brought out logically and is easily understandable. There are several good illustrative diagrams, photographs and

microstructures which also bring more clarity to the subject. There are also Ashby Materials selection diagrams which give the relative advantages of several materials based on various parameters like Modulus-Density, Strength-Density, Fracture toughness-Density, Fracture toughness-Strength, Strength-Cost and these can form a useful handy reference to many.

Books of this nature form an interesting reading because they give in-depth information on a specific field keeping in mind the limited knowledge base of the wide spectrum of readers.

It is a must read for those who are closely or even remotely connected with defense equipments and is an useful informative reading for those in other fields.