DESCRIPTION

*Handbook of Surface Treatments and Coatings* brings together in a coherent way, for the first time, as much practical information as possible to help with the selection and appropriate use of surface treatments and coatings in mechanical engineering. The selection methods are based on in-service properties and functions required. In this way, a wealth of knowledge and expertise is made easily accessible to a wide audience, including non-specialists.

This is an extremely important title in the “Tribology in Practice Series” (TIPS). In order to design and manufacture improved products which have a competitive edge in the global market, it is important to be able to produce surfaces that do not wear; are more resistant to tarnishing and corrosion; and retain their electrical, optical, or thermal properties over a long period of time. It is also of great benefit to be able to simplify product ranges or maintenance requirements, make mechanisms lighter, reduce noise, and enhance the value of strategically or economically advantageous materials.

It is now universally acknowledged that surface treatments and coatings have a prominent role to play in this respect. A number of processes of a mechanical, physical, chemical, or electrochemical nature are used to modify the surface properties of materials, in particular their hardness, distribution of residual stresses, composition and structure, topography, and surface energy. Much information on the subject is difficult to access, being very varied in form and content.

CONTENTS INCLUDE:
Elements of surface mechanics – parameters of frictional contact.

• Further parameters and definitions.

• Principal phenomena or surface transformation and wear.

• The role of surface treatments.

• Properties, applications, and implementation of surface treatments and coatings.

• Importance of surface treatments and coatings in tribology.

• Classification of surface treatments and coatings.

• Properties and applications of surface treatments and coatings.

• Materials for tribological use.

• Principles of surface treatments and coatings processes.

• Guidelines for selecting and using surface treatments and coatings.
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