Advanced Surface Technology

This new significant book on advanced modern surface technology in all its variations, is aimed at both teaching at engineering schools and practical application in industry. The work covers all the significant aspects of modern surface technology and also describes how new advanced techniques make it possible to examine surfaces all the way down to their atomic layers and also to perform realistic durability tests. The many surface techniques are described in clear and simple language, and the book is richly illustrated with detailed drawings and photos. It also deals with replacing environmentally harmful processes and surfaces that contain chromates and nickel among others.

One chapter is dedicated to hardening of materials based on a wide variety of diffusion based industrial methods by indiffusion of for example nitrogen, carbon, boron, chromium, etc. Examples are given of carburizing, nitriding, carbonitriding, and many other lesser-known thermochemical processes used for solving technological problems. The book is richly illustrated with pictures and figures showing how the technology creates new innovative solutions for industry and how surfaces are becoming integral to the function of the components. It covers everything from biocompatible surfaces of IR absorbent or reflective surfaces to surfaces with specific properties within low friction, hardness, corrosion, colors, etc. The book includes more than 400 pages detailing virtually all analysis methods for examining at surfaces.

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