

Special Issue Reprint

Technologies of Coatings and Surface Hardening for Tool Industry

www.mdpi.com/books/reprint/4623

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ISBN 978-3-0365-2452-8 (Hardback)

ISBN 978-3-0365-2453-5 (PDF)



The innovative coating and surface hardening technologies developed in recent years allow us to obtain practically any physical–mechanical or crystal–chemical complex properties of the metalworking tool surface layer. Today, the scientific approach to improving the operational characteristics of the tool surface layers produced from traditional tools industrial materials is a highly costly and long-lasting process. Different technological techniques, such as coatings (physical and chemical methods), surface hardening and alloying (chemical-thermal treatment, implantation), a combination of the listed methods, and other solutions are used for this. This edition aims to provide a review of the current state of the research and developments in the field of coatings and surface hardening technologies for cutting and die tools that can ensure a substantial increase of the work resource and reliability of the tool, an increase in productivity of machining, accuracy, and quality of the machined products, reduction in the material capacity of the production, and other important manufacturing factors. In doing so, the main emphasis should be on the results of the engineering works that have had a prosperous approbation in a laboratory or real manufacturing conditions.

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