

Workshop »Coatings for Biomedical Applications«

Advancing Healthcare through PVD Coatings: The Benefits in Medical Applications

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The use of coatings in medical device design is becoming increasingly prevalent. BALIMED hard coatings offer clear advantages from multiple perspectives, including preventing scuffing and ensuring trouble-free operation even when running dry. These low-friction, wear-resistant, chemically inert coatings are just a few thousandths of a millimeter thick but are harder than steel. Physical vapor deposition (PVD) is one of the methods used to produce these coatings, where the coating material is evaporated by heat or by bombardment with ions and where a reactive gas (e.g. nitrogen or a gas containing carbon) is added, forming a highly adherent coating. The composition and properties of BALIMED coatings can be tailored for specific applications, such as the new antimicrobial PVD coatings, which combine favourable tribological properties with promising antimicrobial behaviour of silver. These coatings have high potential for use in orthopedic and medical devices, as fine-tuning doping concentrations can achieve a balance between antibacterial efficiency and toxicity.

