

## **Adapted PVD-coatings for dental implants**

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The requirements for implant materials are very diverse: depending on the area of application they range from high mechanical fatigue strength to adjusted stiffness and high elongation at fracture to the essential biological compatibility. All the materials used in implantology are technical materials and have primarily not been developed for biological needs. According to this the materials used in implantology fulfill the mechanical requirements in an excellent manner, while on the biological side in two respects optimization is needed: on the one hand are all the metallic implant materials, particularly in bacterial inflammatory situations, corrodible and on the other hand they denature to the surface adsorbed proteins. Especially with coatings based on tantalum, niobium and zirconium oxides as well as their multinary compounds the release of ions, compared to conventional materials, is reduced by several orders of magnitude and they offer potential in the fine-tuning of their composition to support specific protein adsorption.