

The surface of bone and dental implants plays an important role in osteoblast adhesion and bone growth. Many factors affect the quality of osseointegration, including chemical composition and surface morphology. Studies have shown that roughened surfaces are more favorable for bone formation and faster osseointegration compared to implants with smooth surfaces.

Roughness is measured with an average roughness (Ra), while the most commonly used parameter for describing roughness is calculated in microns. The rough surfaces produced by grit-blasting have irregular geometries with Ra value of 3.0 μm , which is considered optimal for the osseointegration process.

The SGE surface is produced using a large-grit sandblasting technique that generates a macro-roughness on the titanium surface followed by an acid-etch bath, which produces the micro-roughness. This promotes cell attachment as seen in the scanning electron microscope (SEM) picture of the SGE surface of Sterngold implants in figures 1 through 9.

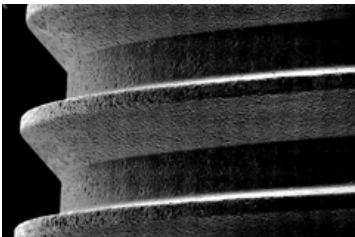


Figure 1 TRU®/PUR® Dental Implant SEM – Scanning Electron Microscopy

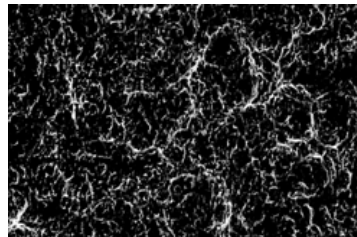


Figure 2 TRU®/PUR® Dental Implant SEM – Scanning Electron Microscopy

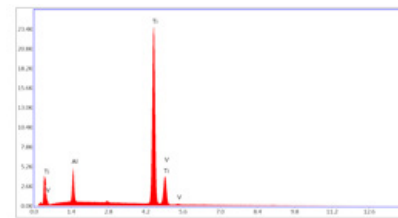


Figure 3 TRU®/PUR® Dental Implant - EDS
EDS - Energy Dispersive X-ray Spectroscopy

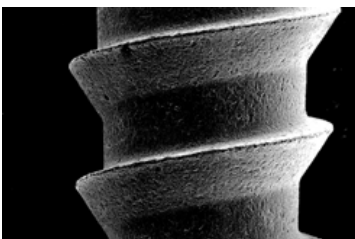


Figure 4 MOR® Dental Implant SEM – Scanning Electron Microscopy

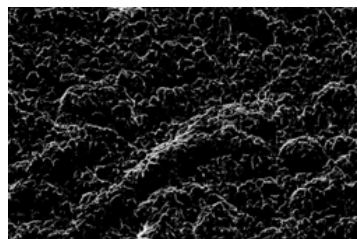


Figure 5 MOR® Dental Implant SEM – Scanning Electron Microscopy

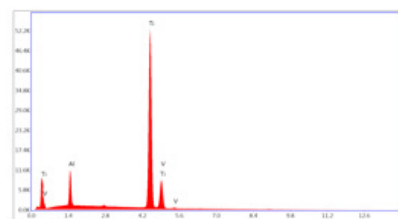


Figure 6 MOR® Dental Implant EDS - Energy Dispersive X-ray Spectroscopy



Figure 7 Stern EX Dental Implant SEM – Scanning Electron Microscopy

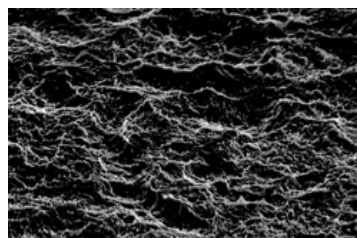


Figure 8 Stern EX Dental Implant SEM – Scanning Electron Microscopy

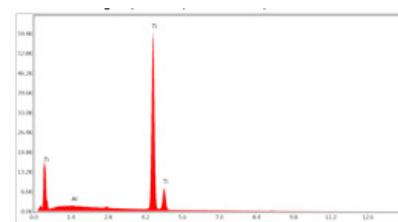


Figure 9 Stern EX Dental Implant EDS - Energy Dispersive X-ray Spectroscopy