7-11 JULY 2024
NANOSMAT Barcelona
15th International Conference on Surfaces, Coatings and Nanostructured Materials
www.nanosmat2024.com

ABSTRACT:

Biocompatibility of Selected Alloys Produced using Laser Melting Technology

D. Laskowska1
1Koszalin University od Technology, Faculty of Mechanical Engineering and Energy, Śniadeckich 2, 75-453 Poland

Additive manufacturing, thanks to the ability to precisely produce elements with complex geometries in a single step, without the constraints of conventional machining methods or predetermined shapes, is gaining increasing interest in medicine and implantology. Medical implants entirely or partially manufactured using this technology, like load-bearing implants, dental implants, reconstructive implants (replacing removed bone fragments), and stabilizing implants, are already available on the commercial market.
For successful osseointegration of the implant, it is necessary to find a compromise between mechanical properties and permeability, which should be considered already at the design stage. Moreover the implant should mimic the natural bone matrix and meet a range of requirements regarding biocompatibility, porosity and degradation rate (in the case of short-term implants). The selection of material, considering the type and function of the implant, is also an important aspect.