Titanium Nitride

History | Integrity | Security

With over ten years of clinical history, titanium nitride (TiN) ceramic is an innovative surface coating technology, well-established within the orthopaedic industry\(^1, 2, 3, 4\). This coating allows patients to enjoy the benefits of a ceramic articulation whilst maintaining the strength and flexibility of their metal implant. The ceramicised outer layers minimise exposure of the patient’s joint space to metal ions, reducing the risk of metal allergies and bacterial proliferation\(^2, 5\).

Confidence with longevity
The only ceramic surface coating with more than ten years of clinical history\textsuperscript{1, 3, 4}
Titanium Nitride

Optimising performance

As a ceramic surface, TiN exhibits superior hardness four times that of cobalt chrome alloys, low surface roughness and high wettability with synovial fluids allowing for optimal wear characteristics\(^3,4,5,6,7\). Its superior surface scratch resistance prevents implant damage at excessive contact loads\(^5,6\).

TiN ceramic coatings have shown up to 98\% reduction in wear against polyethylene in hip simulator studies\(^6\).

Four times harder than cobalt chrome
The ultimate low wear solution
Titanium Nitride

Reliability and stability

TiN coating is deposited onto the implant via a computer controlled physical vapour deposition process where metal vapours are ionized several times and post accelerated onto the implant surface. This creates consistently thin, 4-5μm, coatings allowing the metal implant to maintain its strength and flexibility. The ionic bond between the ceramic coating and metal substrate provides superior coating bond strength preventing delamination and implant damage at high contact loads.
Over 160,000 implants coated since 1995
Titanium Nitride

A proven solution to metal allergy

TiN surface coating protects patients from adverse allergic reactions. The ceramic layer reduces release of metal ions into the patient’s joint space and minimises bacterial proliferation\(^2,3\). In Ni sensitive patients TiN provides a simple, effective and well proven implant solution where the coating acts as a barrier to metal ion release.
CoCr uncoated

Wear Rate mm³ million cycles

TiN coated

TiN coated samples displayed undetectable nickel traces and a dramatic reduction in cobalt ion release in an emersion test.

The No. 1 choice for any patient
Corin is dedicated to the use of advanced coating technologies to improve implant function and longevity. TiN coating, applied by DOT GmbH, features on Uniglide, AMC and Zenith implant ranges providing a solution for patients with diverse indications.
Leading the way in surface coating technologies
References:


9. Data on file DOT GmbH.