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Bioresorbable Porous Metals for Orthopaedic Applications

A resorbable metal orthopedic implant technology is safely absorbed after providing bone support, eliminating the need for costly and complication-prone second removal surgeries.

Currently, medical operations that require an orthopedic implant must be followed-up with a second surgery to remove the implant or the accompanying hardware of the implant. The additional surgery results in higher medical costs for patients and increases the risk of complications. However, the use of nontoxic, biodegradable implants could eliminate the need for a second surgery. According to BCC Research (2015), the global market for implantable biomaterials is expected to grow through 2019 at a compounded annual growth rate of 6.7 percent.

Researchers at Purdue University have developed technology for a resorbable orthopedic implant that is safely absorbed after providing adequate support for damaged bones. This resorbable metal technology provides superior properties over its counterparts, including high porosity for vascular invasion, control of particulate size and degradation rate, and control of mechanical properties to support fixation. Furthermore, the inclusion of hydroxyapatite particulates helps promote bone cell mineralization.

Advantages:

-Eliminates the need for a second surgery to remove implant

-Superior control over porosity, surface area and roughness, and corrosion rates

-Promotes bone recovery with the inclusion of hydroxyapatite particulates

Potential Applications:

-Medical/Health

-Orthopedic injuries

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Related Publications:

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