

HA/TCP

CALCICOAT CERAMIC COATING

CALCICOAT®
CERAMIC COATING
(HA/TCP)

FIBER METAL MESH
WITH HA/TCP



Calcicoat

FIXATION ADVANTAGES OF FIBER METAL
NOW WITH HA/TCP CERAMIC COATING

More than 13 years of favorable clinical results have proven that titanium fiber metal provides an excellent surface for bone ingrowth, enhancing the fixation of an orthopaedic device.¹⁻⁴ Now, this fiber metal surface is available with a ceramic coating consisting of hydroxyapatite and tricalcium phosphate. This coating is partially soluble, and has a minimal effect on the pore size and porosity of the fiber metal surface. Fixation occurs as biological ingrowth progresses into the fiber metal and portions of the HA/TCP are gradually resorbed by the bone.

The *Calcicoat* Process

The fiber metal surface is press fit against the bone, which begins to grow in close apposition to the HA/TCP coating. Ingrowth progresses as the coating is gradually resorbed by the bone.

* Actual resorption time may vary.

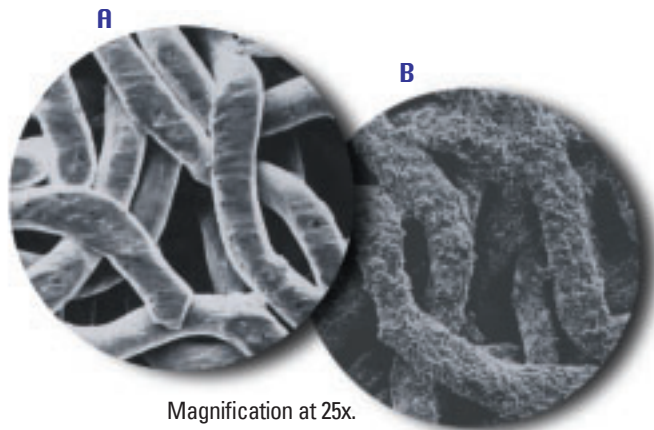


Short-Term
Initial Implantation

HA/TCP
Gradually Resorbs*

Calcicoat Ceramic Coating

is available on select Zimmer acetabular shells and femoral components.



Magnification at 25x.

Porosity Maintained

The pore size and porosity of the fiber metal (A) is essentially maintained after the *Calcicoat* HA/TCP material (B) is applied at an approximate thickness of 70 microns.



Long-Term
Bone Ingrowth^{1,4}

A Different Ceramic Coating

Calcicoat is approximately 65% calcium hydroxyapatite and 35% tricalcium phosphate. The material is approximately 50% crystalline.⁵

Biphasic Properties

The HA/TCP material has an amorphous biphasic nature. It is composed of the stable phase, calcium hydroxyapatite (HA) and the more soluble phase, tricalcium phosphate (TCP). Its biphasic nature makes it more soluble, therefore, more easily resorbed *in vivo*.

Application Technology

Calcicoat is applied using modern, plasma spray technology. It begins with a carefully characterized and pure ceramic feedstock. Robotic control of the plasma gun helps ensure that the coating is applied with a consistent thickness and chemistry. The plasma process operates at extremely high temperatures and velocities, partially melting the ceramic particles and propelling them toward the surface to be coated.⁵ The semi-molten particles impact the surface and freeze, forming the coating. Zimmer has more than 10 years of experience in the application of this coating to implant surfaces.



Proven Results

Implants with a titanium fiber metal ingrowth surface have more than 13 years of successful clinical results.^{1,4} The *Trilogy*® Acetabular System evolved from the highly successful Harris/Galante Porous and HGP II Acetabular Cup Systems. The history of these components is documented in published reports of clinical success in both primary and revision THR, as well as in various patient populations.^{1,4}

CALCICOAT CERAMIC COATING (HA/TCP)

Calcicoat is a calcium phosphate coating that is applied to orthopaedic implants utilizing titanium fiber metal to achieve long-term fixation through bone ingrowth. Fixation occurs as biological ingrowth progresses into the fiber metal and portions of the HA/TCP are gradually resorbed by the bone.

For more information regarding *Calcicoat* Ceramic Coating, contact your Zimmer representative or visit us at www.zimmer.com.

- 1 Lachiewicz PF, Poon ED. Revision of a total hip arthroplasty with a Harris-Galante porous-coated acetabular component inserted without cement. A follow-up note on the results at five to twelve years. *J Bone Joint Surg Am*, 80(7):980-984;1998.
- 2 Silverton CD, Rosenberg AG, Sheinkop MB, et al. Revision of the acetabular component without cement after total hip arthroplasty. A follow-up note regarding results at seven to eleven years. *J Bone Joint Surg Am*, 78(9):1366-1370;1996.
- 3 Smith SE, Harris WH. Total hip arthroplasty performed with insertion of the femoral component with cement and the acetabular component without cement. Ten to thirteen-year results. *J Bone Joint Surg Am*, 79(12):1827-1833;1997.
- 4 Tompkins GS, Jacobs JJ, Kull LR, et al. Primary total hip arthroplasty with a porous-coated acetabular component. Seven to ten-year results. *J Bone Joint Surg Am*, 79(2): 169-176;1997.
- 5 Test data on file at Zimmer.

