

***Do You Have A  
Bone Bonding®\* Implant?***

***Nanotechnology-Based  
Bone Bonding Implants—  
Only From BIOMET 3i.***

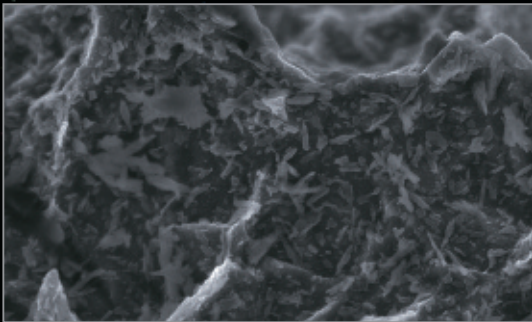


## Is It Possible? Can A Titanium Dental Implant Surface Be Rendered Bone Bonding®?

**The Answer Is YES!** – By increasing the complexity of the surface topography with the addition of nano-scale calcium phosphate (CAP) crystals.

### How Is This Done?

Surface topography plays a determinant role in the Bone Bonding Phenomenon. Through a Discrete Crystalline Deposition (DCD™) Process in which nano-scale crystals of calcium phosphate are added to the OSSEOTITE® Dual Acid Etched Surface, a topographic complexity at the sub-micron scale is established.



BIOMET 3i NanoTite™ Surface at 50,000x

The resulting undercuts of the nano-scale crystals are significant because these act as the main driving force for Bone Bonding by means of a mechanical interlocking of bone matrix with the CAP crystal modified implant surface.<sup>1</sup>

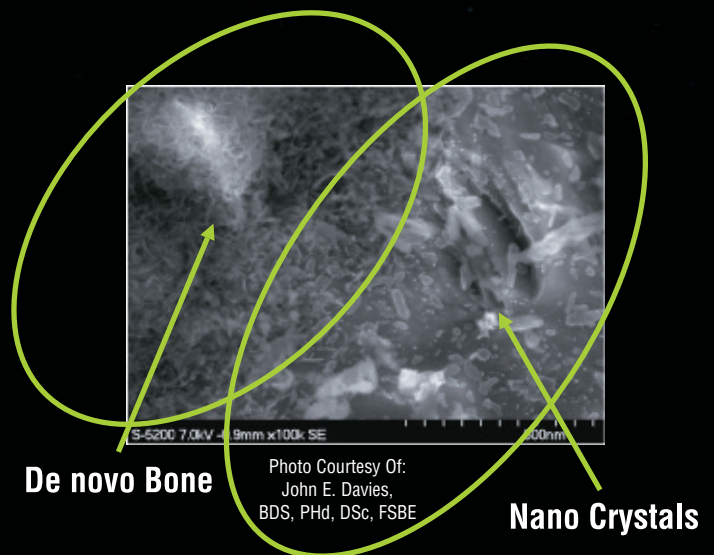
### So What Does This Mean?

Preclinical studies demonstrate a substantial improvement on the rate and extent of osseointegration for the NanoTite Implant versus the OSSEOTITE Implant.

Potential scenarios where such an implant might be beneficial to patient and practice might include the following:

- Immediate And Accelerated Loading Protocols
- Immediate Replacement In Extraction Sockets
- Simultaneous Grafted Sites And Implant Placement
- Aesthetic Areas Where Bone Preservation Is Critical
- Implant Placement In Poor-Quality Bone
- Locations Requiring Short Or Wide Implants

### Interface Of Cement Line Matrix And DCD Treated Implant Surface



De novo Bone

Nano Crystals

## Evidence Of Bone Bonding® :

A comprehensive series of preclinical and clinical studies was performed on the NanoTite™ Surface. These studies conclusively demonstrated that the NanoTite Surface results in a greater rate and extent of osseointegration as compared to the OSSEOTITE® Surface alone.

These results further demonstrate that the micro-topography of the OSSEOTITE Surface combined with the nanometer scale architecture created by the NanoTite Surface Treatment renders it a Bone Bonding Surface.

Preclinical Studies			
Study Center	Evaluations	Comparisons With OSSEOTITE	Healing Time
UCLA	Rat Push-in	Up to 129% push-in force difference <sup>2</sup>	14 days
SkeleTech	Rabbit Pull-out	109% increase in pull-out force <sup>3</sup>	14 days
University of Toronto	T Plant Histology	160% increase in Bone-Implant Contact (BIC) <sup>4</sup>	9 days
University of Toronto	Tensile 1	700% detachment force difference <sup>5</sup>	9 days
University of Toronto	Tensile 2	>1,000% detachment force difference <sup>5</sup>	9 days
Clinical Studies			
The Department of Stomatology and Oral Science at the University G.d'Annunzio, Chieti – Pescara	Trephined mini-implant	15 pairs NanoTite Surface/OSSEOTITE Surface; 70% increase in BIC. <i>J Periodontol</i> 2007;78;209-28.	8 weeks
Dr. Ronnie J. Goené, Amsterdam Dr. Tiziano Testori, Como Dr. Paolo Trisi, Pescara	Trephined mini-implant	9 pairs NanoTite Surface/OSSEOTITE Surface; 197% increase in BIC at 4 weeks, 148% increase in BIC at 8 weeks. <i>Int J Periodontics Restorative Dent</i> , 2007;27:211-219.	4 and 8 weeks

### References

- Mendes VC, Moineddin R, Davies JE. The effect of discrete calcium phosphate nanocrystals on bone-bonding to titanium surfaces. *Biomaterials*. (2007), doi: 10.1016/j.biomaterials.2007.07.020.
- Ichiro Nishimura, Yuhong Huang, Frank Butz, Takahiro Ogawa, Audrey Lin, Chiachien Jake Wang. Discrete Deposition of Hydroxyapatite Nano-particles on a Titanium Implant With Predisposing Substrate Microtopography Accelerated Osseointegration. *Nanotechnology*. 2007;18:245101(9pp). doi:10.1088/0957-4484/18/24/245101.
- Data on file.
- Mendes VC, Davies JE. Discrete calcium phosphate nanocrystals enhance osteoconduction on titanium-based implant surfaces. Institute of Biomaterials and Biomedical Engineering, Faculty of Dentistry, University of Toronto, Ontario, Canada.
- Davies JE, Mendes VC. Discrete calcium phosphate nanocrystals render titanium surfaces bone bonding. Institute of Biomaterials and Biomedical Engineering, University of Toronto.

# Ordering Information

## NanoTite™ Certain® PREVAIL® Implants

Length	3/4/3mm(P)	4/3mm(P)	4/5/4mm(P)	5/4mm(P)	5/6/5mm(P)
8.5mm	NIOS3485	NIOS4385	NIOS4585	NIOS5485	NIOS5685
10.0mm	NIOS3410	NIOS4310	NIOS4510	NIOS5410	NIOS5610
11.5mm	NIOS3411	NIOS4311	NIOS4511	NIOS5411	NIOS5611
13.0mm	NIOS3413	NIOS4313	NIOS4513	NIOS5413	NIOS5613
15.0mm	NIOS3415	NIOS4315	NIOS4515	NIOS5415	NIOS5615

## NanoTite Certain Tapered PREVAIL Implants

Length	4/3mm(P)	5/4mm(P)	6/5mm(P)
8.5mm	NIITP4385	NIITP5485	NIITP6585
10.0mm	NIITP4310	NIITP5410	NIITP6510
11.5mm	NIITP4311	NIITP5411	NIITP6511
13.0mm	NIITP4313	NIITP5413	NIITP6513
15.0mm	NIITP4315	NIITP5415	NIITP6515

## NanoTite Certain Parallel Walled Implants

Length	3.25mm(D)	4.0mm(D)	5.0mm(D)	6.0mm(D)
8.5mm	NIOSS385	NIOSS485	NIOSS585	NIOSS685
10.0mm	NIOSS310	NIOSS410	NIOSS510	NIOSS610
11.5mm	NIOSS311	NIOSS411	NIOSS511	NIOSS611
13.0mm	NIOSS313	NIOSS413	NIOSS513	NIOSS613
15.0mm	NIOSS315	NIOSS415	NIOSS515	NIOSS615
18.0mm	NIOSS318	NIOSS418	N/A	N/A

## NanoTite Parallel Walled Implants

Length	3.25mm(D)	4.0mm(D)	5.0mm(D)	6.0mm(D)
7.0mm	N/A	NOSS407	NOSS507	NOSS607
8.5mm	NOSM385	NOSS485	NOSS585	NOSS685
10.0mm	NOSM310	NOSS410	NOSS510	NOSS610
11.5mm	NOSM311	NOSS411	NOSS511	NOSS611
13.0mm	NOSM313	NOSS413	NOSS513	NOSS613
15.0mm	NOSM315	NOSS415	NOSS515	NOSS615
18.0mm	NOSM318	NOSS418	NOSS518	NOSS618

## NanoTite Certain Tapered Implants

Length	3.25mm(D)	4.0mm(D)	5.0mm(D)	6.0mm(D)
8.5mm	NINT3285	NINT485	NINT585	NINT685
10.0mm	NINT3210	NINT410	NINT510	NINT610
11.5mm	NINT3211	NINT411	NINT511	NINT611
13.0mm	NINT3213	NINT413	NINT513	NINT613
15.0mm	NINT3215	NINT415	NINT515	NINT615

## NanoTite Tapered Implants

Length	3.25mm(D)	4.0mm(D)	5.0mm(D)	6.0mm(D)
8.5mm	NNT3285	NNT485	NNT585	NNT685
10.0mm	NNT3210	NNT410	NNT510	NNT610
11.5mm	NNT3211	NNT411	NNT511	NNT611
13.0mm	NNT3213	NNT413	NNT513	NNT613
15.0mm	NNT3215	NNT415	NNT515	NNT615



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