ADVANCED METALLIC COATING TECHNOLOGIES

ASYMMATRIX™ & OSSEOMATRIX®

SUMMARY

Three new porous coatings are available immediately from Orchid Orthopedic Solutions (Memphis, TN).

1. **ASYMMATRIX ™ Ti**

   ASYMMATRIX Ti is an irregular CP Ti powder coating available for Ti6Al4V alloy components. The powder is sintered onto the implants using standard techniques.

2. **ASYMMATRIX™ CoCr**

   Asymmatrix CoCr is an irregular ASTM F75 CoCr powder coating available for cast CoCr components. The powder is sintered onto the implants using standard techniques.

3. **OSSEOMATRIX® Ti**

   OSSEOMATRIX is a cancellous bone-like coating available for TI6Al4V components. OSSEOMATRIX possesses an open cell porous structure of CP titanium powder deposited onto polyurethane foam using a proprietary process. The metallized foam is then sintered onto implant surfaces. The coating can be machined to final print using another process proprietary to Orchid.

TYPICAL PROPERTIES

The properties of these coatings are detailed below. These properties are typical expected values; the exact values will depend on the individual applications, in part determined by size and geometry of the implants.

TABLE I - Pore Characteristics

	Porosity (%)	Pore Size (μm)
ASYMMATRIX Ti	50 - 70	150 - 300
ASYMMATRIX CoCr	40 - 60	150 - 250
OSSEOMATRIX	45 -75	200 - 600

All coatings exceed 20 MPa requirements for tensile strength and static shear strength of the FDA Guidance Document [1]. Generally, we can comfortably reach minimum tensile strength of 35 MPa (5,000 psi).

The sintering conditions for these coatings are similar to those used for spherical beads. Therefore the substrate properties remain the same as for spherical coatings.

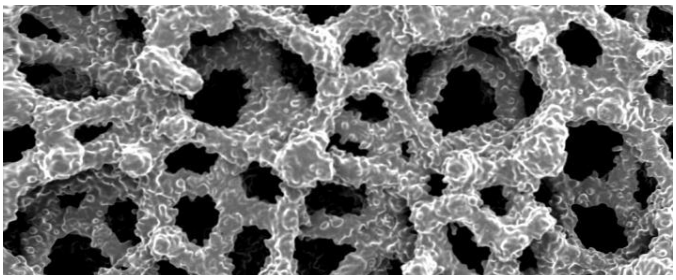

Figure 1: SEM image of OSSEOMATRIX

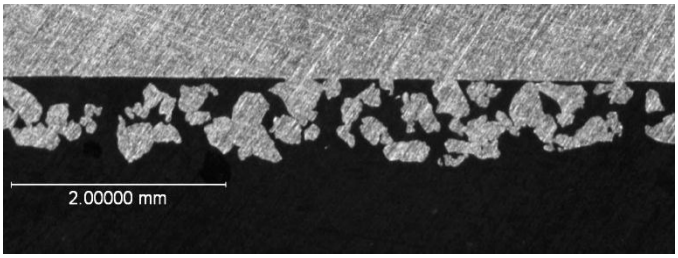

Figure 2: Cross-section of ASYMMATRIX Ti

1. *FDA Guidance Document –for testing Orthopedic Implants with Modified Metallic Surfaces Apposing Bone or Bone Cement.*

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