Implant Coatings and Surface Treatments

Leaders in the latest surface engineering technologies

Our expertise

Experience that delivers results.

Market Segments
• Orthopedic (joint and spine)
• Dental
• Cardiovascular
• Veterinary

Capabilities
• Hydroxyapatite coating (HA)
• Titanium plasma spray coating (TPS)
• Titanium on polyether ether ketone (PEEK)
• Rough porous TPS coating
• Asymmatrix® coating
• Custom coating technologies
• Sintered bead coatings on titanium and Co/Cr
• Resorbable blast media surface treatment (RBM)
• Passivation per ASTM F-86
• Heat-treating
• Final cleaning and packaging

Coatings in Development
• Titanium on ultra-high molecular weight polyethylene (UHMWPE)
• Anti-wear ceramic coating

Special Services
• Staff metallurgist and validation specialist
• FDA consulting and 510k submission
• Package design
• New coating development

Contact us today

Make your ideas a reality.

Orchid

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ABOUT ORCHID

Orchid is a worldwide leader of orthopedic medical device outsourcing, providing contract design and manufacturing services. We are a strategic sourcing partner that can handle an entire project or provide services at a Single Point in the process.

Orchid’s coating divisions have been leaders in the orthopedic industry for decades. Through communication with our customers and suppliers, we continue to develop value-added, innovative technologies and services.

Our newly developed process for applying titanium coating to PEEK spinal implants combines biocompatibility with osteointegration. In addition to developing new coating technologies, we are also experts in the clinical success of hydroxyapatite coating (HA), the high osseo-integration capability of titanium plasma spray (TPS) / vacuum plasma spray (VPS), and the roughened surface of resorbable blast media (RBM).

If you want custom capabilities, rapid turnaround times, innovative technologies and an excellent track record, We can provide total project partnership right from the start to bring your products to market ahead of the curve.

PARTNER WITH US

Unparalleled experience, market-driven solutions and technical innovations.
### Meeting the challenge of implant fixation.

#### Spherical
- Bead coating of various sizes that creates a three-dimensional porous structure that can be applied to either titanium or Co/Cr implants.

#### Asymmatrix®
- An irregular bead coating structure with the added features of an extremely rough surface and increased porosity.

#### Titanium Plasma Spray (TPS) on metal
- Creates interconnected porosity down to the substrate for titanium or Co/Cr implants using commercially pure titanium or Ti6Al4V.

#### Hydroxylapatite (HA)
- The same mineral found in bone (60-70% of bone is mineral). Bone responds to it as an osteoconductive surface.

#### Resorbable Blast Media (RBM)
- A textured surface that will provide the benefit of increased roughness (surface area) without leaving any foreign entrapped materials.

#### Rough Titanium Plasma Spray (TPS)
- A vacuum plasma sprayed (VPS) titanium coating that can be applied on Titanium and CoCr substrates and has a rough surface texture.

#### Titanium Plasma Spray (TPS) on PEEK
- Creates interconnected porosity down to the substrate for PEEK implants using commercially pure titanium or Ti6Al4V.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Cp Ti on Ti alloy Co/Cr on Co/Cr</th>
<th>Cp Ti on Ti alloy Co/Cr on Co/Cr</th>
<th>HA on Ti alloy HA on Co/Cr HA on SS</th>
<th>Proprietary</th>
<th>Cp Ti on Ti alloy Co/Cr on Co/Cr</th>
<th>Cp Ti on PEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment Method</td>
<td>High-temperature sintering</td>
<td>High-temperature sintering</td>
<td>Plasma spray</td>
<td>Blast</td>
<td>Plasma spray</td>
<td>Plasma spray</td>
</tr>
<tr>
<td>Macro-Texture</td>
<td>Smooth, moderately rough</td>
<td>Rough</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Rough</td>
<td>Rough</td>
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<tr>
<td>Porosity Range (%)</td>
<td>30 – 50</td>
<td>50 – 70</td>
<td>Dense coating</td>
<td>N/A</td>
<td>30 – 50</td>
<td>20 – 60</td>
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<tr>
<td>Pore Size Range (μm)</td>
<td>100 – 300</td>
<td>100 – 300</td>
<td>Dense coating</td>
<td>N/A</td>
<td>100 – 300</td>
<td>100 – 300</td>
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<tr>
<td>Coating Thickness</td>
<td>&gt; 0.020 in</td>
<td>&gt; 0.020 in</td>
<td>25 – 75 μm</td>
<td>N/A</td>
<td>0.025 – 0.035 in</td>
<td>0.005 – 0.038 in</td>
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</tbody>
</table>