Subject Index

A

Abrasion resistance, 169
Abrasive blasting, 62
Abrasive material, residual, 125
Aluminum-silicon-iron-manganese coatings, 179
Amorphous carbon, tetrahedral, 169
Amorphous Co-20P alloy, 32
Amorphous cobalt-chromium particles, 194
Annealing temperature effects, 98
Articulating surface, 125
ASTM standards
   E 466, 3
   F 75, 3, 62, 89
   F 138, 156
   F 1537, 11, 62, 71, 98, 145, 156

B

Bar stock, 71, 98
Bone cement particles, 194
Bone conductive, 32
Bone-implant interface, 32

C

Carbon composition, 145
Carbon content, cobalt-chromium-molybdenum alloy, 47, 108
   high carbon, 11, 98, 125
   low carbon, 98, 125
Carbon, diamond-like, 169
Cast cobalt-chromium-molybdenum alloy, 62, 108, 125
Cellular response, wear particles, 194
Chromium, serum protein carriers, 211
Coatings
   physical vapor deposition, 169
   porous, 62, 71, 89
   quaternary intermetallic compound, 179
   wear resistant, 32
Cobalt-chromium alloys, 71, 194
   cast, 135
   high carbon wrought, 135
   low carbon wrought, 135
Cobalt-chromium-carbon, 32
Cobalt-chromium-molybdenum alloy, 32
   F 75, 3, 62, 89
   F 799, 89
   F 1537, 11, 62, 71, 98, 145, 156
   bar stock, 71
   carbon, 108
   cast, 62, 108, 125
   cast and wrought, 62
   coatings, 32, 62, 71, 89, 179
   dispersion-strengthened, 89
   forged, 11, 62, 71, 89
   high carbon, 11, 98, 125
   injection molded, 3
   low carbon, 98, 125
   powder morphology processed, 47
   rolled, 11
   wrought, 11, 62, 98, 125
Cold drawing effects, 98
Compressibility, 47
Compression tests, 108
Contact angle measurements, 156
Corrosion behavior, 47, 211
Corrosion resistance, 89, 169

D

Dental devices, physical vapor deposition coatings for, 169
Dispersion strengthened cobalt-chromium-molybdenum alloy, 89
Ductility, 47, 98, 108

E

Electroslag remelting, 11
COBALT-BASE ALLOYS FOR BIOMEDICAL APPLICATIONS

F
Fatigue strength, 62, 71, 89
Fatigue test
\[ \text{F 466, 3} \]
Forged cobalt-chromium-molybdenum alloy, 11, 62, 71
\[ \text{F 799, 89} \]

G
Gas-atomized dispersion strengthened alloys, 89
Glassy alloys, 32
Grain size, 98
Grain structures, 89
Gravimetric technique, 145
Grinding, surface, 125

H
Hardness, 47
Hip implants, metal, 125
Hip replacements, 194
Hip simulator test machine, 135, 145
Hot isostatic pressing, 62
Hypophosphite layer, 32

I
Injection molding, 3
Intermetallics, 179
Investment casting, 62
Iron, in intermetallic compounds, 179

J
Joint replacement, chromium serum protein carriers, 211

L
Laser marking, 62

M
Manganese, intermetallic compounds, 179
McMinn surface replacements, 194
Metal injection molding, 3
Metal ion release, 211
Metal on metal bearing surfaces, 125
hip replacements, 194
wear, 135, 145
Metal protein binding, 211
Metasul total hips, 194
Microprobe analysis, 179

P
Phase transformation, 108
Physical vapor deposition coatings, 169
Plastic deformation, 108
Polyethylene ultrahigh molecular weight, wear, 32, 156
Polymeric compliant layer, 47
Powder metallurgy, 47
Protein, 211

R
Rolled cobalt-chromium-molybdenum alloy, 11
Rolling temperature effects, 98

S
Scanning electron microscopy, 108, 125
Silicon, in intermetallic compounds, 179
Sintering behavior, 71
investment cast F 75, 62
liquid phase injection molded F 75, 3
powder morphology processed, 47
Solution treating, 62
cobalt-chromium alloy, 135
Spraying, metal process, 11
Steel, stainless
\[ \text{F 138, 156} \]
Strain hardening, 108
Surface grinding, 125
Surface roughness, 135, 156
<table>
<thead>
<tr>
<th>T</th>
<th>Wear, ultrahigh molecular weight polyethylene, 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength, 71</td>
<td>Wrought-annealed materials, 108</td>
</tr>
<tr>
<td>test, 47</td>
<td>Wrought cobalt-chromium-molybdenum, 11, 62, 98, 125</td>
</tr>
<tr>
<td>Tensile test, 3</td>
<td></td>
</tr>
<tr>
<td>Tetrahedral amorphous coatings, 169</td>
<td></td>
</tr>
<tr>
<td>Titanium alloy, 71</td>
<td>X</td>
</tr>
<tr>
<td>nitride, 169</td>
<td>X-ray diffraction, 108</td>
</tr>
<tr>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Vacuum induction melt, 11</td>
<td>Y</td>
</tr>
<tr>
<td>Vitallium, 89</td>
<td>Yield strength, 3, 108</td>
</tr>
<tr>
<td>W</td>
<td>Z</td>
</tr>
<tr>
<td>Wear performance, 194</td>
<td>Zirconium nitride, 169</td>
</tr>
<tr>
<td>Wear resistance, 11, 125, 135, 145</td>
<td></td>
</tr>
<tr>
<td>Wear resistant coatings, 32, 169</td>
<td></td>
</tr>
<tr>
<td>Wear testing, 135, 145, 156</td>
<td></td>
</tr>
</tbody>
</table>