Material Data Sheet
for: LW N° 2

This alloy corresponds to the standards ISO 22674/Type 4 and ISO 9693-1. It can be applied as a dental laser wire corresponding to the standard ISO 28319.

1. Composition

<table>
<thead>
<tr>
<th>Element</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au</td>
<td>94.00%</td>
</tr>
<tr>
<td>Pt</td>
<td></td>
</tr>
<tr>
<td>Au</td>
<td>75.10%</td>
</tr>
<tr>
<td>Pd</td>
<td>18.85%</td>
</tr>
<tr>
<td>Sn</td>
<td>2.00%</td>
</tr>
<tr>
<td>In</td>
<td>2.00%</td>
</tr>
<tr>
<td>Ag</td>
<td>1.00%</td>
</tr>
<tr>
<td>Zn</td>
<td>0.50%</td>
</tr>
<tr>
<td>Cu</td>
<td>0.50%</td>
</tr>
<tr>
<td>Ir</td>
<td>0.05%</td>
</tr>
</tbody>
</table>

2. Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting range</td>
<td>1120-1250°C</td>
</tr>
<tr>
<td>Density</td>
<td>16.4 g/cm³</td>
</tr>
<tr>
<td>Young's Modulus</td>
<td>115 GPa</td>
</tr>
<tr>
<td>Linear Coeff. of thermal expansion (25-500°C)</td>
<td>14.0 x 10⁻⁶ K⁻¹</td>
</tr>
<tr>
<td>Linear Coeff. of thermal expansion (25-600°C)</td>
<td>14.3 x 10⁻⁶ K⁻¹</td>
</tr>
<tr>
<td>Colour</td>
<td>Pale yellow</td>
</tr>
</tbody>
</table>

3. Mechanical Properties

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tensile strength (Rm)</th>
<th>0.2% Proof stress (Rp 0.2%)</th>
<th>Elongation</th>
<th>Schwickerath crack initiation test</th>
</tr>
</thead>
<tbody>
<tr>
<td>as cast</td>
<td>615 MPa</td>
<td>440 MPa</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>after firing</td>
<td>680 MPa</td>
<td>520 MPa</td>
<td>12%</td>
<td>64 MPa</td>
</tr>
</tbody>
</table>

4. Biological tests

Cytotoxicity test according to ISO 10993-5:
The cytotoxic effect of the alloy was tested with the extract test.
(Project, 221804, 03.06.1991, CCR, DE-6101 Rossdorf, Germany)

Sensitization test according to ISO 10993-10:
The allergic sensitization of the alloy was tested with the maximization test.
(Project 291745, 24.06.1991, RCC, Ittingen/Basel, Switzerland)

Mutagenicity test (AMES) according to ISO 10993-3:
The mutagenicity was tested with the «Reverse Mutation Assay» using bacteria Salmonella typhimurium.
(Project 100870, 25.03.2010, BSL Bioservice, DE-82152 Planegg, Germany)

Results:
The alloy showed neither a cytotoxic nor a mutagenic potential nor did it cause any allergic sensitization.
5. Certification

This alloy corresponds to the standards ISO 22674/Type 4 and ISO 9693-1. It can be applied as a dental Laser wire corresponding to the standard ISO 28319.

Corrosion testing according to standard DIN 13927 showed that a total of $1.2\mu g/cm^2 \times 7d$ was released (limit: $200\mu g/cm^2 \times 7d$).

Manufacture, packing and delivery are constantly monitored according to the quality management system standards according to ISO 9001 and ISO 13485.

Cendres+Métaux SA

Dr. Carmen Krüger
Head of Materials Development

Dr. Flavio Campana
Head of Material Testing