Gold-Reduced-Universal Alloy, Type 4
for low-fusing high-expanding ceramics
free of copper

Item no. 7349 3 001
Delivery form Casting plates
Indication Special ceramics veneering and plastic veneering
inlays, onlays, crowns,
large span bridges,
milling-, conus- and telescope technique
model casting

Alloy: Au 58 Ag 28 Pd 9

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Density g/cm³</th>
<th>Composition content in % (m/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>yellow</td>
<td>14.3</td>
<td>Au 69.0, Pt 58.0, Pd 1.9, Ir 9.0, Ag 0.1, Zn 27.5, Sn 2.5, In 1.0</td>
</tr>
</tbody>
</table>

The alloy is free of Ni, Co, Cr, Be, Cd.

Technical data

<table>
<thead>
<tr>
<th>Vickers hardness HV 5/30</th>
<th>0.2 % proof stress MPa</th>
<th>Elongation %</th>
<th>Modulus of elasticity MPa</th>
<th>Average linear CTE μm/m·°K 25-500°C/25-600°C</th>
<th>Melting range °C</th>
<th>Pre-heating temp. °C</th>
<th>Casting temp. °C</th>
<th>Ann.-Ealing °C</th>
<th>Hard-Ening °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>w</td>
<td>n</td>
<td>a</td>
<td>w</td>
<td>n</td>
<td>a</td>
<td>w</td>
<td>n</td>
<td>a</td>
<td>103.000</td>
</tr>
</tbody>
</table>

w= annealed  n=after firing a = hardened

Solders

<table>
<thead>
<tr>
<th>Application</th>
<th>Solder</th>
<th>Working temp. °C</th>
<th>Composition content in % (x = &lt; 0.1 %)</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary solder/ before firing</td>
<td>PLATINOR® M-Lot 1</td>
<td>950</td>
<td>Au 60.0, Pt 0.5, Ir 0.1, Ag 35.8, Zn 1.8, Sn 1.8</td>
<td>yellow</td>
</tr>
<tr>
<td>Secondary solder/after firing</td>
<td>PLATINOR® CPF-Lot 2</td>
<td>710</td>
<td>Au 73.0, Pt 0.5, Ir x, Ag 12.5, Zn 14.0, Sn -</td>
<td>yellow</td>
</tr>
</tbody>
</table>

Instruction for use
Instruction for use AUROPLADENT® M

1. Modelling
   - Cramic veneering: Create an anatomically reduced wax model, considering the planned veneering. Sharp edges are to be avoided, soft level crossings are to be striven at.
   - Plastic veneering: Modelling is effected in line with the common dental technique procedures. The veneering areas have to be provided with a sufficient retention.
   - Wall thickness of the modelled (waxed) single crowns at least 0.4 (0.3) mm, bridge pillar crowns at least 0.5 (0.4) mm.

2. Spruing System
   - Direct spruing with casting channel: at least Ø 3.5 mm
   - Running bars or rings with object spruing: 3.0 x 3.0 mm
   - Running bars/rings: Ø 4.0 – Ø 5.0 mm
   - Casting channels: Ø 3.5 – Ø 4.0 mm

3. Position of the Wax Model in the Investment Mould
   - Distance from the mould wall: The units should have at least 5-10 mm distance from the mould wall.
   - Distance from the mould bottom: Direct spruing between wax units and mould bottom a distance of 10 – 15 mm has to be kept.

4. Investment
   - Cover investment mould with investment ring spacer.
   - Investment mould x 1 / x 3: 1 layer
   - Investment mould x 6 / x 9: 1 – 2 layers
   - Phosphate bonded investment material is required.
   - The investment material manufacturer’s instructions for use have to be complied with strictly.

5. Burnout / Preheating
   - Burnout immediately after drying of the investment material at 280-300 °C according to the mould size respectively 30/40/50/60 min.
   - Preheating at 700 °C according to the mould size respectively for 20/30/40/50/60 min. If handling a greater number of moulds, the preheating time has to be extended accordingly.

6. Crucible Material
   - Ceramic and graphite crucibles can be used.

7. Casting Units
   - All common melting and casting units can be used.

8. Casting
   - Further heating times after reaching the liquid temperature according to the quantity of material used and unit output.
     - Resistance heating: 60 – 120 sec.
     - High frequency: 5 – 10 sec.
     - Propane / Oxygen torch: 5 – 10 sec.

9. Casting Residues
   - In order to preserve the alloy characteristics and the casting quality, no more than 50 % cleaned casting residues should be used.
   - The weight used is calculated from: wax weight x alloy density (see Heimerle + Meule calculation sheet).

10. Cooling and Divestment
    - Let mould cool down to hand temperature and carefully divest.
    - This avoids deviations in fitting, change of alloy characteristics, and hot fissures. Sandblast with high grade corundum (approx. 100 μm) or with an market pickling agent to remove the investment material.

11. Finishing and Cleaning
    - Finish frame with tungsten carbide burs and ceramic bonded milling tools with only little pressure; then sandblast surface with aluminium oxide (approx. 100 μm) at low pressure ( max.2 bar).
    - For frame parts which will not be veneered high gloss polishing is recommended. Then steamclean the frame and degrease it with a suitable pickling agent (e.g. AMISUL). During grinding sufficient protection against dust inhalation has to be taken.

12. Oxidation
    - 5 min at 800 °C without vacuum.

13. Firing of the Ceramic
    - For veneering we recommend special ceramics with a CTE and firing temperature matching the alloy.
    - Perfectly suited is for example the veneering ceramic PLATINAm or other market ceramic materials.
    - Ensure secure support of the frame during firing.

14. Plastic Veneering
    - The points 12 and 13 do not apply. Veneering is made according in accordance to the manufacturer’s use for instruction.

15. Soldering
    - Soldering areas have to be sufficiently big and should already be considered during modelling.
    - Soldering areas to be metalically blank.
    - The solder gap should be 0.05 – 0.2 mm.
    - Recommended soldering:
      - Primary Solder before firing: PLATINOR® M-Lot 1 950 °C
      - Secondary Solder after firing: PLATINOR® CPF-Lot 2 710 °C
    - Slowly cool down the soldering object.

16. Hardening
    - After casting / firing AUROPLADENT M shows a density sufficiently high for its area of indication. If required, the maximum hardening after veneering can be reached through final tempering at 450 °C for 15 min.

17. Pickling and Polishing
    - Remove flux residues or oxides by pickling in AMISUL at about 80 °C or by sandblasting. Rubber-wheel the frame; final polishing can be accomplished with pastes, brushes, buffing wheels, and felt.

Our recommendations and instructions for use are based on our experience. They do not, however, replace professional knowledge and experience of dentists and dental technicians who hold sole responsibility for their decisions to select and process particular alloys.

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