High Gold Content Alloy, Type 4
for low-fusing high-expanding ceramics
free of palladium, silver and copper

Item no. 7344 3 001
Delivery form Casting plates
Indication Classic ceramic, inlays, onlays, crown technique, longer span bridges

Alloy: Au 87 Pt 10

<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>18.6</td>
<td>Au 97.0, Pt 87.0, Ir 9.9, In 0.1</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</th>
<th>Melting range °C</th>
<th>Preheating temp. °C</th>
<th>Casting temp. °C</th>
<th>Annealing °C</th>
<th>Hardening °C min</th>
</tr>
</thead>
<tbody>
<tr>
<td>g</td>
<td>n</td>
<td>a</td>
<td>n</td>
<td>a</td>
<td>g</td>
<td>n</td>
<td>a</td>
<td>n</td>
<td>a</td>
</tr>
<tr>
<td>125</td>
<td>140</td>
<td>180</td>
<td>385</td>
<td>495</td>
<td>12</td>
<td>8</td>
<td>86.000</td>
<td>14.3</td>
<td>14.5</td>
</tr>
</tbody>
</table>

g = after casting, n = after firing, a = hardened

Solders

<table>
<thead>
<tr>
<th>Application</th>
<th>Solder</th>
<th>Working temp. °C</th>
<th>Composition content in % (m/m) (x=0.1%)</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary solder/ before firing</td>
<td>PLATINOR® APF-Lot</td>
<td>1010</td>
<td>Au 62.0, Pt 1.0, Ir x, Ag 36.0, Zn 0.5, Cu 0.5</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, Cu , In</td>
<td>yellow</td>
</tr>
</tbody>
</table>

Instruction for use

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**Instruction for use PLATINOR® AM 97**

1. **Modelling**
   Create an anatomically reduced wax model, considering the planned veneering. Sharp edges are to be avoided, soft level crossings are to be striven at.
   Due to stability reasons, care has to be taken at bridge frames to achieve solid modulation of the connections and in the case of larger spans to create palatal and interdental strength of the connecting parts. 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**
   - Single crown: Direct spraying with casting channel at least Ø 3.5 mm
   - From 2 single crowns on and bridges:
     - Running bars or rings with object spraying: 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 spraying between wax units and mould bottom a distance of 10 – 15 mm has to be kept. Investment of running bars or rings: the middle of the running bar or ring should cover the middle of the mould.

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 280–330 °C according to the mould size respectively 30/40/50/60 min. Preheating at 800 °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. The preheating time is specific to the alloy and must be observed.

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

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

8. **Casting**
   Casting temperature at 1290 °C
   Further heating times after reaching the liquidus temperature according to the material used and unit output.
   - Resistance heating: 60 – 120 sec.
   - High frequency: 5 – 10 sec.
   - Propane / Oxygen torch: 5 – 10 sec.

   In the case of torch melting, pay attention to the correct setting of the torch (danger of carbon damage) and melt with the reduced zone.

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 calibration sheet).

10. **Cooling and Divestment**
    Let mould cool down below room temperature 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). 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**
    10 min. at 950 °C with vacuum.
    If the oxide layer shows spots, grind the frame again and repeat the work steps. Thereafter steamclean the frame and degrease it with a suitable pickling agent (e.g. AMISUL).

13. **Firing of the Ceramic**
    The alloy is suited for conventional ceramics, max. firing temperature 950 °C
    With regard to the firing cycles the indications of the respective ceramic manufacturer have to be complied with strictly.

14. **Firing Process**
    After each firing cycle the object has to be cooled down at a middle speed according to the CTE of 14.5 μm/m – K. Ensure a safe support of the frame by firing pins or casted loops/pins; otherwise individual firing pins (fireproof stump material) are to be used.

15. **Soldering**
    Soldering areas have to be mettallically blank.
    Solder before firing: PLATINOR® APF-Lot 1010 °C
    Solders after firing: PLATINOR® CPF-Lot 1 710 °C
    Slowly cool down the soldering object.

16. **Hardening**
    After casting / firing the alloy shows a sufficiently high density for its area of indication. If required, the maximum hardening can be reached by a final annealing at 500 °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.

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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. Our customer service is a non mandatory service not establishing any liability. Warranty and damage claims are limited to the contracted contents of our General Terms and Condition.