

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

## AUROPLADENT® M

acc. to DIN EN ISO 22674  
acc. to DIN EN ISO 9693

Item no. 7349 3 001

Delivery form Casting plates

QM-System certified  
according to DIN EN ISO  
46001 for medical products

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

Type	Colour	Density g/cm <sup>3</sup>	Composition content in % (m/m)									
			Au + Pt metals	Au	Pt	Pd	Ir	Ag	Zn	In		
4	yellow	14.3	69.0	58.0	1.9	9.0	0.1	27.5	2.5	1.0		

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

### Technical data

Vickers hardness HV 5/30			0.2 % proof stress MPa			Elongation %			Modulus of elasticity MPa	Average linear CTE µm/m·K 25-500°C/ 25-600°C	Melting range °C	Pre- heating temp. °C	Casting temp. °C	Ann- Ealing °C min	Hard- Ening °C min
w	n	a	w	n	a	w	n	a							
150	220	240	370	570	610	15	8	5	103.000	16.4/16.9	990-1100	700	1230	750 10	450 15

W= annealed n=after firing a = hardened

### Solders

Application	Solder	Working temp. °C	Composition content in % (x = < 0,1 %)							Colour
			Au	Pt	Ir	Ag	Zn	Sn		
Primary solder/ before firing	PLATINOR® M-Lot 1	950	60.0	0.5	0.1	35.8	1.8	1.8		yellow
Secondary solder/after firing	PLATINOR® CPF-Lot 2	710	73.0	0.5	x	12.5	14.0	-		yellow

### Instruction for use

## Instruction for use AUROPLADENT® M

### 1. Modelling

Ceramic 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

Single crown:  
 Direct spruing with casting channel at least Ø 3.5 mm  
 From 2 single crowns on and bridges:  
 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.  
 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 280-300 °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. 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 1230 °C  
 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.  
 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 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 (e.g. Duceragold, Evolution, Carrara Vincent)  
 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 have to be metallically blank.  
 The solder gap should be 0.05 – 0.2 mm.  
 Recommended soldering investment material: DUROCONT L  
 Recommended flux material: Universal soldering paste ARGOFUX  
 Primary Solder before firing: PLATINOR® M-Lot 1 950 °C  
 Secondary Solders 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.