

Instructions for use

High Gold Metal Alloys for Inlays, Crown and Bridgework

Mixing of different alloys or alloys of similar types is not allowed!
Wear darkened eye protection and protective gloves when melting.

Protect eyes, hands and breathing when pickling.

Protect eyes and breathing during processing with rotating instruments with an aspirator device.

With the publication of these instructions for use all previous editions are no longer valid.

The manufacturer refuses any liability for damages due to disregard of the instructions for use below.

Directions for High Gold Metal alloys for Inlays, Crown and Bridgework

Yearlong clinical experience has shown, that these alloys have very good corrosion resistance and are biocompatible. They have wide processing tolerance and are very valued by the patient for their yellow colour. This group contains alloys with differing mechanical and physical properties. Thus a wide field of application is possible. Type 3 (high strength) alloys are especially suited for inlays and short-span bridges. Type 4 (extra high strength) alloys were especially developed for long-span bridges, milled work as well as works combined with attachments. These alloys can be soldered without problems and can be used for the casting-on technique. They are selfhardening, if benchcooled to room temperature in the cylinder or the soldering block. Therefore additional thermal treatment is unnecessary.

General instructions for use

Modelling

Usual modelling technique for ceramic-fused-to-metal works. Minimal wall thickness 0.4 mm. With bridgework the connections must have a minimum section of 6–9 mm². Modelling of garlands or inlay shaped reinforcements in the palatal region will give added stability. The application of air and cooling vents improves casting results.

Investing

The following investments are recommended for this type of alloys:
CM-10 (plaster based)
CM-20 (based on quartz and cristobalite without graphite for the rapid preheating technique)

Re-use of alloy

Only use perfectly cleaned (by sand-blasting with aluminium oxide) buttons and sprues and add **at least 1/3 of new alloy**.

Traceability of lot numbers

If different lots of an alloy are being used for the realisation of a restoration, all lot numbers concerned must be noted in order to assure traceability.

Surface quality of cast objects

In order to prevent corrosion the cast object must have a surface free of shrink holes and porosities after trimming and polishing.

Cooling of castings

Do not quench the casting cylinder after casting, but bench cool to room temperature.

Pickling

After casting or soldering pickle in a warm, freshly prepared (clean) solution of 10 vol. % sulphuric acid (H₂SO₄).

Note: When using other pickling agents follow the instructions for use of the respective manufacturer.

Polishing

After the last firing free metal surfaces must be polished to a high shine in order to completely remove the oxide layer.

Disinfection

Each prosthetic restoration must be cleaned and disinfected before try-in or definite insertion in the mouth of the patient.

Additional directions for use

On processing of precious metal alloys, soldering and the casting-on technique are provided in the Dental documentation of Cendres+Métaux.

Allergies

With patients having an existing allergy to one or several elements contained in any one alloy, this particular alloy must not be used. With patients suspected of having an allergy to one or several elements contained in any one alloy, this alloy can only be used after preliminary allergological testing and proof of a non-existing allergy.

Rx only

The products carry the CE sign.
See packaging for details.

Physical and mechanical properties

Alloys	Indications						Colour	Composition in weight %												First solder ①	Second solder ①			
	a	b	c	d	e	f		Au- + Pt-Met.	Au	Pt	Pd	Ag	Cu	Sn	Zn	In	Ga	Ir	Ru			Re	Fe	Ta
Neocast® 3	✓	✓	✓	✓	✓	✓	Yellow	75.40	71.60	3.75		12.70	10.80		1.10			0.05					S.G 810	S.G 750
Opticast®	✓						Yellow	83.30	83.20			8.00	8.50		0.20			0.10					S.G 810	S.G 750
Protor® 3	✓	✓	✓	✓	✓	✓	Yellow	75.05	68.60	2.45	3.95	11.85	10.60		2.50			0.05					S.G 810	S.G 750

ISO 22674 / ISO 9693

Alloys	Density g/cm³	Melting range °C	Casting temp. °C	Crucible	Hardness as cast HV5 *			Young's Modulus GPa *	0.2 % proof stress, Rp 0.2 %			Elongation A5		
					annealed HV5 ② *	hardened HV5 ③ *	hardened HV5 ③ *		as cast MPa *	annealed MPa *	hardened MPa *	as cast % *	annealed % *	hardened % *
Neocast® 3	15.5	890–920	1020–1070	① ② ③	245	180	240 ④	95	620	405	635 ④	16	33	14 ④
Opticast®	16.3	915–935	1035–1085	① ② ③	115	115	–	80	200	215	–	47	51	–
Protor® 3	15.0	880–940	1040–1090	① ② ③	280	175	275 ④	95	700	410	680 ④	7	35	12 ④

* The values indicated result from measurements obtained under exactly defined conditions. Individual deviations of ± 10% are possible and to be considered as normal.

Particular instructions for use

Alloys	Preheating temperature	Recommended casting systems (not compulsory)					② Annealing	③ Hardening in the ceramic furnace	Sandblasting with glass beads 50µm
		Propane-oxygen flame	Vacuum-pressure casting with electric resistance furnace	Centrifugal casting with electric resistance furnace	High frequency induction in atmosphere	High frequency induction in protective gas atmosphere			
Neocast® 3	650°C	✓	✓	✓			700°C / 10 min / H ₂ O	400°C / 15 min / air	✓
Opticast®	650°C	✓	✓	✓			700°C / 10 min / H ₂ O	–	✓
Protor® 3	700°C	✓	✓	✓			700°C / 10 min / H ₂ O	400°C / 15 min / air	✓

Indications a  Inlays, onlays, crowns ¾ b  Single crowns c  Short-span bridgework d  Long-span bridgework e  Milled work f  Clasps, lingual bars, palatal plates

① The use of solders not mentioned in the table is subject to the user's risk. In case of uncertainties, consult the instructions of the manufacturer involved.

① Graphite crucible ② Universal ceramic crucible ③ Vitrified carbon crucible

④ 100% selfhardening after cooling in the cylinder or soldering block, otherwise particular instructions for use ② and ③