



User instructions

CHROMODUR® M



Cobalt based dental casting alloy for removable restorations.

Nickel and beryllium free.

ISO 22674



Elephant Dental B.V.

Verlengde Lageweg 10
1628 PM Hoorn, The Netherlands
Tel: +31 229 25 90 00
Fax: +31 229 25 90 99
E-mail: info@elephant.nl
www.elephant-dental.com



Made in Germany

Chemical composition in mass-percentage

Co	62.2
Cr	29.0
Mo	6.0
Mn, Si, W, C	trace

Physical and alloy properties (target values)

Type	V
Colour	White
Density	8.4 g/cm ³
Vickers hardness*	400 (HV5)
0.2% Yield strength*	600 MPa (Rp 0.2)
Elongation*	4 %
Tensile strength*	860 MPa
Modulus of elasticity*	230 GPa
Solidus temperature	1,330°C/2,426°F
Liquidus temperature	1,360°C/2,480°F
Casting temperature	1,530°C/2,786°F

Rx only

* as cast

Indications:

Type V, cobalt based dental casting alloy for the manufacturing of removable dental restorations.

Contraindications:

If patients are known to be allergic to one of the components, the material should not be applied. If components of the alloy are not tolerated or cause an allergic reaction, use must be terminated.

Warnings:

Prolonged exposure to alloy dust and/or fumes may lead to lung irritation and/or pulmonary complications. Use appropriate engineering controls to limit exposure. For excessive inhalation of dust or fumes, seek medical advice. This alloy contains chromium. Some compounds of this element are potential carcinogens. Advise your health care provider of exposure to this element.

Adverse effects:

In exceptional cases, certain components of the alloy may cause an allergic reaction or sick feeling due to electrochemical processes. Exposure to alloy dust or fumes may cause eye irritation and/or respiratory complications.

Interactions:

In exceptional cases, occlusal or approximal contact with different alloys may cause a sick feeling due to electrochemical processes.

Processing instructions

1. Sprues

Apply 2 to 4 sprues to each wax pattern, depending on the size of the object.
Sprue diameter: 3-3.5 mm.
Connect at the pattern's thickest point expanding in delta fashion.
Arrange sprues in line with the direction of metal flow.
Keep sprues short to minimize distance between cone and cast. Attach sprue former at least 1 cm above pattern.

2. Painting with liquid investment

Apply a thin, even coat of liquid investment to the pattern, avoiding bubbles.
Invest model immediately, do not allow liquid investment to dry.

3. Investing

CRUTA-VEST "plus" is ideally suited to reach optimal fit. Pour into casting ring, avoiding bubbles.
Mixture ratio powder : liquid
Models (with duplicating compound) 100 g : 13 ml
(with duplicating silicone) 100 g : 16 ml
Moulds 100 g : 16 ml

hardening time: 30-45 min.
(see Processing instructions CRUTA-VEST "plus")
Alternatively to CRUTA-VEST "plus", we also offers the HARTEX binder investment material for the CHROMODUR M system.

4. Preheating

Preheat casting rings in preheating furnace according to CRUTA-VEST "plus" processing instructions:
300°C (572 °F) holding time 30 min.
600°C (1,112 °F) holding time 30 min.
1,000°C (1,832 °F) holding time 30-45 min.
For plates and intricate designs preheat at 1,050°C (1,922 °F) holding time 30-45 min.

5. Required metal quantities

Simple bar:	3 ingots = 25 g
Skeletal plate:	3-4 ingots = 25-34 g
Complete plate:	5-6 ingots = 42-51 g

6. Casting

a) Motorized or spring-loaded centrifugal caster for open-flame melting

Ignite the acetylene-oxygen or propane-oxygen gas mixture. Fully open both valves and adjust the flame by throttling the intake of acetylene or propane such that blue cones approx. 3 mm long are visible at the holes of the multi-orifice head. Pressure values for the flame: acetylene = 0.7 bar, oxygen = 1.9 bar or propane = 0.3 bar, oxygen = 1.5 bar. This gives a neutral flame which is absolutely essential for melting CHROMODUR M. Place CHROMODUR M ingots into preheated crucible. Heat ingots evenly until they form a molten bath by keeping the torch about 40 mm above the crucible whilst making rotating movements. As soon as the oxide shade breaks, initiate centrifugal movement.

b) Atmospheric high-frequency melting and centrifugal casting unit

Do not use graphite crucibles.
As soon as ingots are molten and shaded areas have disappeared from the melt, wait 4 sec and then initiate centrifugal casting.

c) Vacuum high-frequency melting and centrifugal casting unit

This unit can be used for melting and casting all CHROMODUR M alloys under vacuum conditions.
As soon as ingots are molten and shaded areas have disappeared from the melt, wait 4 sec and then initiate centrifugal casting.

7. Disembedding

After casting, allow casting ring to cool for about 10 min (temperature drop is sufficient when button has turned dark), then quench in cold water.
Remove casting carefully.
Remove residual investment.
Clean with DENTA STRAHL corundum blaster.

8. Finishing

CHROMODUR M frameworks can be easily finished using rotary instruments for CoCrMo removable partial dentures; use dust collector.
Clean after finishing by blaster using corundum and then beads.

9. Electrolytic polishing

Immerse dry CHROMODUR M cast into the electrolytic bath and polish for 5 min; rinse, dry and inspect.
Repeat procedure if necessary to improve lustre.

10. Soldering

Flame soldering: Clean surfaces, remove oxides. Secure parts to be soldered. Cover surfaces with flux.
Use CoCr solder in conjunction with soldering powder; suitable for all repair work.
Alternatively, gold solders for CoCr can be used (observe manufacturer's instructions).

11. Polishing

After electrolytic polishing, remove surface with rubber polisher.
Polish with brush and paste. Use wool buffs for high lustre.
Clean with steam jet or in an ultrasonic cleaning bath.

12. Re-use of sprue cones

To produce satisfactory casts, preferably use original CHROMODUR M ingots. If however, previously cast cones are to be re-used, a **mixture ratio by weight of**
$$\frac{1}{\text{(CHROMODUR M ingots)}} : \frac{1}{\text{(CHROMODUR M sprue cone)}}$$

must be observed.
Prior to re-use, sprue cones should be carefully cleaned to remove investment and oxides.

13. Warranty

Our processing recommendations given in writing, orally or by practical presentation are based on our own experience and/or trials as well as on the use of materials and devices manufactured by Elephant Dental B.V.; they are non-binding in all respects.
It is the responsibility of the user to test incoming merchandise and check our recommendations with regard to the envisaged use.
Any claims for damages will be limited to the value of the merchandise supplied by us.
In all other respects, our terms and conditions of sale and delivery applicable at the time of the contract of purchase shall apply. Claims which are not expressly allowed in said terms and conditions shall be excluded unless we are liable by mandatory law in cases of (wrongful) intent or gross negligence.
As we are committed to the improvement of our products we reserve the right to make changes in composition, design, unit supplied and packaging.