

SPARTALLOY

Chrome-Cobalt Partial Denture Alloy

SURVEYING

Survey and design the master model using accepted laboratory procedures.

DUPLICATING

Follow the instructions of Investment and Hydrocolloid you are using. Recommended hydrocolloids and investments:

Nobiloid All-Purpose (#1002) for Yellow Stripe, Good Earth, Green Stripe and Four Seasons Investments.

Instaloid Concentrated All-Purpose (#72-10) for Yellow Stripe, Good Earth, Green Stripe and Four Seasons Investments.

NobilFlex (#1009) for Yellow Stripe, Good Earth and Purple Stripe Investments.

SPRUNG

Most cases can be successfully cast using three, 6 gauge sprues. Always place the sprues in the bulkiest areas of the wax-up. Exceptions may be for those cases having pontics and extra heavy areas. Cases of this type may require addition of auxiliary sprues and reservoirs.

BURNOUT

Consult the specific burnout direction from the investment you are using. In general, burnout is accomplished in two stages, first stage 500°F (260°C) hold for 60 minutes. Second stage is 1850°F (1010°C) heat soak time is one hour.

MELTING AND CASTING

Use all new or a 50/50 mixture of new alloy and buttons that are free of investments and oxides. The alloy may be melted by either induction melting equipment or a gas/oxygen torch with multi-orifice tip.

Caution: Wear OSHA approved eye protection recommended for torch melting.

When using Oxygen and Acetylene: The gauge for oxygen should be set at 10 lbs and the acetylene set at 8 lbs.

When using Oxygen and Propane: The oxygen pressure should be set at 20 lbs and the propane set at 10 lbs.

When using Natural Gas and Oxygen: The Oxygen pressure should be set at 30 lbs and the natural gas valve open at full pressure. Heat alloy in crucible until it collapses, then remove mold from furnace and place in casting machine. Cast after flame causes wave. Note: The slag being left in the crucible after casting should be removed to avoid being carried into the next casting.

Physical Properties

Composition: 62.5% Cobalt, 28.5% Chromium, 6.0% Molybdenum, <1% Nickel

Density: 8.31 g/cc

Hardness: Vickers 380 VHN1

Proof Stress: 0.2%: 600 MPa

Ultimate Tensile Strength: 875 MPa

Modulus of Elasticity: 209 GPa

Elongation: 6%

Fusion Range: 2278°-2532°F (1248°-1389°C)

Burnout Temperature: 1850°F (1010°C)

Casting Temperature: 2700°F (1482°C)

INDUCTION MELTING

Set power to high and make sure shadow is disappearing and alloy slumps. Automatic casting machines should be set at a temperature of 2750°F (1510°C) with a 5 second heat-soak.

REPAIR OF FRAMEWORK

Prepare parts to be welded by grinding or sand blasting to a clean surface and invest in Nobilium Welding and Soldering Investment (#2033). Thicker areas should be ground to a "V" shape. Adjust gauges to 1 lb oxygen and 1 lb acetylene. Heat the end of the welding rod and dip into powdered flux. Heat both parts to be welded and proceed to melt. Keep torch about 1/2 inch (12 mm) from the area to be welded. Framework may be finished and polished in the usual manner.

CARE OF A NOBILSTAR RESTORATION

It is extremely important that you convey to your customer, the Dentist, that use of hypochlorites or soaking in common household bleach can damage a chrome alloy denture. It is not possible to determine whether or not a commercial denture cleaner contains hypochlorites by reading the label. To avoid unnecessary problems, a safe and effective way to daily clean a partial denture is to use a stiff brush and tooth paste. After thoroughly scrubbing the partial, rinse in running tap water. If overnight soaking is desired, use only distilled water.

