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Chromalloy-PDS PARTIAL DENTURE ALLOY

Chromalloy-PDS is a Cobalt-Chromium based alloy acceptable for use in fabrication of dental prosthetics and reconstructions.

LOT _____ KG: _____ OZ_____ P.N. 1965-1405 Rev. _____

CHEMISTRY
COBALT = 64.00% NOMINAL.
CHROMIUM = 28.00% NOMINAL
MOLYBDENUM = 6.00% NOMINAL
OTHER (C, Mn, Si, Fe) = < 2.00%

PHYSICAL PROPERTIES:
Yield Strength = 80,000 psi; 550 MPa
Modulus of Elasticity = 228 GPa
Elongation = 10%
Casting Temperature = 2750°F (1510°C)

TECHNICAL INSTRUCTIONS
WAXING:
Commercially made wax or plastic patterns available for most of framework.

SPRUING:
Sprue through hole centrally located in mold. Allows flow of metal to center of framework. Prevents premature cooling of mold during casting. Shorter sprues at discretion of lab technician. Wax together tips of clasp to help prevent incomplete casting of clasp.

INVESTING:
Proceed with investing via manufacturer's recommended instructions.

BURNOUT:
Recommended cycle.

1. Start-up at 750-850°F (400-455°C)
2. After 1 hour, increase to 1880-1900°F (980-1040°C)
3. Hold at 1700-1800°F (925-980°C) for 1 hour

Use spacers between flask bottom and hearth of furnace. Ensure air can circulate freely between molds. Allows for complete wax burn-out. Mold temperature of 1800°F sufficient for all types of casting. Total time for burn-out 2-3 hours. If accuracy of furnace in doubt, add 1 hour.

CASTING:
Virtually any type of centrifugal casting machine is satisfactory. Electric casting machines are not recommended due to occasional electrical coupling problems. Induction casting machines highly recommended because of speed in melting and resultant elements of alloy being retained.

Use oxy-acetylene torch – With a No. 4 or No. 6 tip, pressure adjusted to 10 pounds for acetylene and 4 pounds for oxygen. Adjust flame inner core between 1/2" and 1" long. Total length of flame to be 2 ½"-3" long. Do not hold torch too close to alloy as sparkling action will occur.

Cast at time of slump in alloy. Oxide surface generally apparent as is typical in all non-precious alloys. If misrun colors, allow for additional slumping. Occasional variances in heating sometimes required from one batch to alloy to the next. Exercise care not to over-heat the alloy to insure properties of the alloy. Keep torch on the alloy until centrifugal motion in effect to prevent misrun.

After casting, allow flask to cool until red has disappeared. Quenching of the alloy is not recommended in water as warpage may occur although various lab techniques do quench (using their own technique).

FINISHING:
Sandblast casting thoroughly to remove all evidence of investment particles and oxide surface.