THE ARGEN CORPORATION

Alloy Specification Sheet

ARGELOY N.P. SPECIAL

Color: WHITE **Type:** 4 **ADA Classification:** Predominantly BASE (PB) **PGM:** 0%

Metal Content %

Mn	Fe	Co	Si	C	Mo	Cr
x	x	59.5	2	x	5	31.5

'x' denotes a content of less than one percent.

Thermal Properties

Melting Range	Casting Temperature	Coefficient of Linear Thermal Expansion (um/m-ºC)	
2265-2460 ºF	2695 ºF	**25-500**	**25-600**
1240-1350 ºC	1480 ºC	14.3	14.8

Mechanical Properties

Vickers Hardness (VHN)			Yield Strength (0.2% Offset)		Modulus of Elasticity (GPa)	Elongation (%)		Density (g/cm³)
A.F.	Soft	Hard	A.F.	Hard		A.F.	Hard	
280	---	---	65,000 psi 450 MPa	--- psi --- MPa	160	9	---	8.8

PROCESS	INSTRUCTIONS FOR USE
Modeling	Maintain a minimum wax thickness of 0.3 to 0.4 mm. The wax pattern design should have lingual collars and no sharp corners. Lingual eyelet rings help support castings during firing.
Sprуing (Single Crowns)	Use direct sprues, 8-10 gauge, (3.3-2.6 mm diameter) and 1/2 in. (12 mm) long with adequate reservoirs. There should be no more than 1/4 in. (6 mm) of investment from the top of the pattern to the top of the investment.
	Use a 6 gauge (4.1 mm diameter) runner bar, connecting the units

Spruing (Multi-Units & Bridges)	to the bar with 10 gauge (2.6 mm diameter) sprues 1/8 in. (3 mm) long and joining the bar to the sprue base with 8 gauge (3.3 mm diameter) and 1/2in. (12 mm) long sprues coming from a domed central entry point. There should be no more than 1/4 in. (6 mm) of investment from the top of the pattern to the top of the investment.
Investing	Use debubblizer and blow off any excess before investing. Recommended Investment:Phosphate Bonded . Follow the manufacturer's instructions.
Burnout	After adequate set-up time, place the ring(s) in a room temperature oven and raise the temperature to 870°C plus 10 minutes for each additional ring. If you are using a rapid fire investment, follow the manufacturer's instructions.
Crucible Type	Quartz or Zircon
Torch Casting	Wind the casting machine one more turn than you would for precious ceramic alloys. A quartz or zircon crucible is necessary. Use a propane/oxygen torch with a multi-orifice tip. Do not use flux. Place the alloy (at least 50% new metal) in a pre-heated crucible. Keep the torch moving to heat all the metal in the crucible at an even rate. The individual ingots will not pool together to form a single mass. Do not stir or rupture the oxide surface. When the flame appears to move the alloy, cast. After casting bench cool before devesting.
Induction or Electrical Casting	When using induction casting machine, pre-heat the crucible. Set the arm speed to 400-450 rpm & set the power to high and be sure that the alloy is pulsating and slumping. The casting temperature of automatic casting equipment should be set for 2695 °F (1480 °C) with a five seconds heat soak.
Cooling	Allow casting ring to cool to room temperature. DO NOT quench in water.
Divesting and Cleaning	Divest and sandblast with 50 micron aluminum oxide, be careful of margins.

Finishing	Grind the metal surfaces for porcelain application with non-contaminating aluminum oxide stones in one direction. Blast with non-recycled 50 micron aluminum oxide. Do not exceed a blast pressure of 4 bars or 60 psi. Clean in distilled water in an ultrasonic cleaner for 10 minutes.
Oxydizing or Degassing	650-980°C, Hold 0 min with Vacuum, Removal of oxide optional
Presolder	Solder joints should be as large as possible (at least 5 mm²). Soldering gap approximately 0.05-0.2 mm. The solder joints should be parallel and free of debris. Preheat invested units and pressure blast with 50 micron just before soldering. Use: Co/Cr Pre INTERNATIONAL / DOMESTIC
Porcelain Application	Follow the recommendations of the porcelain manufacturer. For a better bond, fire a thin wash 10 - 15 °F (10 °C) above normal temperature, followed by regular opaque coats. We recommend drying paste opaque from the inside out; this is done by utilizing a hot plate. The units are placed on a honeycomb sagger tray with metal pins. This is placed on top of the burner set a low to medium setting (approx. 250°F).it will take approximately 8-10 minutes or until the opaque turns chalky white or flat color. Then place in furnace for entry and maturing.
Post Soldering After Firing	Solder joints should be as large as possible (at least 5 mm²). Soldering gap approximately 0.05 - 0.2 mm. Cover ceramically-veneered units with wax before investing. The soldering investment should not come in contact with the ceramic. The soldering surfaces should be parallel, smooth and free of debris. Use: LO,R INTERNATIONAL / DOMESTIC
Laser Wire	LWNPCO
Polishing	Use Tripoli and rouge or other similar products.