

THE ARGEN CORPORATION

Alloy Specification Sheet

ARGEDENT BIO 86PF

Color: YELLOW Type: PFM ADA Classification: HIGH NOBLE (HN) PGM: 97.8%

Metal Content %

Au	Pt	Ir	In	Mn	Zn	Fe	Nb	Rh
85.9	11.7	x	x	x	1.5	x	x	x

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

Thermal Properties

Melting Range	Casting Temperature	Coefficient of Linear Thermal Expansion	
		(um/m-°C)	
1895-1975°F	2245°F	25-500	25-600
1035-1080 °C	1230 °C	14.4	14.7

Mechanical Properties

Vickers Hardness			Yield Strength		Modulus of Elasticity	Elongation		Density
(VHN)			(0.2% Offset)			(GPa)	(%)	
A.F.	Soft	Hard	A.F.	Hard	94	A.F.	Hard	19
203	190	196	82,360 psi	76,500 psi		5	5	
			568 MPa	528 MPa				

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.

Spruing (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.

Spruing (Multi-Units & Bridges)

Use a 6 gauge (4.1 mm diameter) runner bar, connecting the units 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 1/2 in. (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.

Alloy Quantity	19 g/cm ³ * (Wax Weight) = Required Alloy Quantity.	
Investing	Use debubbler 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 800 °C / 1470 °F for 1 hour plus 10 minutes for each additional ring. If you are using a rapid fire investment, follow the manufacturer's instructions.	
Reusing Cast Alloy	Use only clean buttons and at least 35 percent new alloy.	
Crucible Type	Graphite / Ceramic	
Torch Casting	Use either a natural gas/oxygen or a propane/oxygen torch with a multi-orifice tip. Ensure that the flame is on a natural setting when casting. The fuel proportions should be one-part fuel to two-parts oxygen	
Induction or Electrical Casting	Use a ceramic crucible and a casting temperature of a least 150°C / 300°F over liquidus temperature. Every casting machine is different. The casting temperature may require adjustment based upon the alloy and the amount of metal being cast.	
Cooling	Allow casting ring to cool to room temperature. DO NOT quench in water.	
Divesting and Cleaning	Lightly sandblast the outer surface of the work with 50 micron aluminum oxide at two (2) bars of pressure (30psi). Place the work in a plastic container with a hydrofluoric acid substitute in an ultrasonic cleaner to remove the remaining investment. Rinse with distilled water in the ultrasonic.	
Finishing	If the work was waxed to finish then no grinding is required. Otherwise, finish with fine cross-cut carbides at low speed. Do not sandblast. Wash with distilled water in an ultrasonic cleaner. Blot dry. Do not use stones or steam cleaners.	
Oxydizing or Degassing	650-950°C, 1200-1740°F,	hold 5 min, Do not remove oxide, no vacuum
Presolder	Solder joints should be as large as possible (at least 5 mm ²). 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: 1030PF INTERNATIONAL / U.S.	

Follow the recommendations of the porcelain manufacturer. For a

Porcelain Application better bond, fire a thin wash 10 - 15 °F (10 °C) above normal temperature, followed by regular opaque coats.

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: 800 PF / 650, 720

INTERNATIONAL / U.S.

Hardening Heat Treat for 30 min. at 450°C / 842 °F

Laser Wire

Polishing For high noble gold colored ceramic alloys use diamond paste and/or Tripoli and rouge. Yellow crown & bridge golds use Tripoli and rouge with soft bristles, chamois wheels. High shine with clean soft bristle brushes!

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