United
PRECIOUS METAL REFINING, INC.

# Technical sheet - Alloy PD20

**Color** – Medium White(14K), Vanilla White(18K)

**Purpose** – All- Purpose (Sheet, Plate& Wire)

**Karat** – 14K -18K

## Composition & Melting

| Composition | Cu | Ag | Zn | Pd |
|---|---|---|---|---|
| | 17.00% | 48.50% | 2.50% | 32.00% |

| | | Temperatures | |
|---|---|---|---|
| **Melting** | **Karat** | **°C** | **°F** |
| **Initial** | 14K - 18K | 1140 °C - 1150 °C | 2084 °F - 2100 °F |
| **Ingot** | 14K - 18K | 1120 °C - 1130 °C | 2050 °F - 2066 °F |

- The alloy and fine gold should be melted together in a clean crucible. Place alloy in the bottom of the crucible and fine gold on top.
- Initial melting temperature should be obtained then reduced to the suggested ingot temperatures.
- The alloy should be mixed well with a stirring rod to ensure a good mix.
- Alloy should be poured into a preheated, vertical, or lightly lubricated iron mold.
- Use a steady, even pouring motion slowing down at the end of the pour to prevent shrinkage at the top of the ingot.
- Use a round rod mold for wire and a 2-piece L shaped mold for plate and sheet.

## Quenching

- The metal ingot should be removed from the mold and quenched immediately into a pickle solution or water.
- For heavy ingots a one- minute cooling period is recommended to avoid quench cracking.

## Fabrication

- The metal ingot should be cleaned of all adhering oxides or fluxes before rolling.
- The ingot should be rolled or drawn to a 50% reduction in size before annealing.
- After initial annealing continue the reduction at 50% before annealing again.
- Clean the ingot after each anneal.
- Keep rolls, dies and metal clean to prevent defects in the finished stock.

## Annealing

- Annealing temperature is **800°C/1475°F** for **20 minutes** & **Quench immediately**. Do not over anneal.
- A boric acid fire coat should be applied before annealing in open atmospheres.
- Over annealing can cause excessive grain growth and orange peel effect on the surface.

Note: There are proprietary metals in the formulation which are not included in the composition section.

**Technical Assistance:** Available… Call 1-800-999-3463 / 1-800-999-FINE

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