



## UNITED ALLOY # 869

Be insured in quality, Be insured in service, Be insured in "United Alloys.

UNITED ALLOY is uniquely different from other available alloys. Combining the highest purity metals available, stringent quality control, special de-oxidizers and grain refiners, produce trouble-free, superior quality castings and fabrication or rolling (hand-made).

UNITED ALLOY # 869 is designed for 14K-18K Nickel Safe White Gold, which produces a Yellowish White Color. This alloy contains Technical Element Metals which improves flexibility in rolling process and better solidification characteristic to reduce the porosity, provide high luster in finished color and can be used Regular Casting, if desired.

- 1.) **MELTING** : The # 869 Alloy, and fine gold should be melted together in a clean crucible. Put alloy in the bottom of the crucible and fine gold on top. The melting temperature for alloying should be 1,030 - 1,050 °C. Boric acid flux may be used to keep the metal clean during the melting process. The metal should be mixed well with a stirring rod before pouring to assure a good mix.
- 2.) **POURING** : Metal should be poured into a preheated, vertical graphite or lightly lubricated iron mold. A steady even pouring motion should be used slowing down at the end of the pour to prevent shrinkage in the top of the ingot. Use a round rod mold for wire and a 2 piece L shaped mold for plate and sheet.
- 3.) **QUENCHING** : Remove the ingot from the mold, allow to air cool. Nickel white gold rolling alloys will be much softer, if allowed to air cool after pouring and after annealing. Soak ingot in a hot pickle solution to remove surface oxides.
- 4.) **FABRICATION** : The ingot should be cleaned of all adhering oxide or fluxes before rolling. The ingot should be rolled or drawn to a 50% reduction in size before annealing. After annealing continue the reduction at 50% before annealing again. Clean the ingot after each anneals. Keep rolls, dies and metal clean to prevent defects in the finished stock.
- 5.) **ANNEALING** : Annealing temperature 732 °C for 20 minutes. DO NOT QUENCH INGOT, allow ingot to air cool. A boric acid fire coat should be applied before annealing in an open atmosphere oven to protect the metal from heavy oxidation. Clean the ingot in hot pickle solution to remove surface oxidation after annealing. Avoid over - annealing wire, plate or sheet as this can cause excessive grain growth creating orange peel surface or poor strength in finished goods.
- 6.) **PICKLING** : United's Brite-Cast™ (Ammonium Bi-fluoride), Sparex # 2 (sodium bisulfate), 10% - 20% Sulfuric Acid.  
Rubber gloves and safety glasses are recommended when using acid pickle.
- 7.) **RE-USING** : New alloy and fine gold 70% and Old gold 30%, Cleans Old gold well before re-melting.
- 8.) **SOLDERING** : United White Solder Alloy # 6SA, # 7SA, # 8SA and # 18WSAE or already mixed gold solder sheet.
- 9.) **NICKEL RELEASE TEST** EN 1811: 2011+A1:2015 (micrograms / square centimeter / week) : 14K- 18K - Compliant
- 10.) **NOTES** : Melt temperature may vary with type of unit.

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