



800 SERIES NICKEL WHITE ALLOYS FOR 10 TO 18 KARAT WHITE GOLD SHEET, PLATE & WIRE FABRICATION

United #800 Series White Alloys are formulated for 10 to 18 karat white gold sheet, plate, and wire fabrication giving a white color. The #800 Series White Alloys can also be used for investment casting if desired.

MELTING

The #800 Series White Gold Alloys and fine gold should be melted together in a clean crucible. Put the alloy in the bottom of the crucible and the fine gold on top. Initial melting temperature should be 1070° C / 1958° F. Drop the temperature somewhat before pouring as listed below. Boric acid flux should be used to keep the metal clean during the melting process. The molten metal should be mixed well with a stirring rod before pouring to assure a good mix. A neutral or reducing cover gas is very helpful in melting white gold alloys.

POURING TEMP. FOR INGOTS 10 K – 1040° C / 1904° F. 14 K – 1010° C / 1850° F. 18 K – 1015° C / 1860° F.

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.

DON'T QUENCH

Remove the ingot from the mold and allow to air cool – don't quench. 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.

FABRICATION

The metal 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. Too small of a reduction can cause ingot to crack during anneal. After annealing continue the reduction at 50% before annealing again. Clean the ingot after each anneal in hot pickle solution. Keep the rolls, dies, and metal clean to prevent defects in the finished stock.

ANNEALING

Annealing temperature 732° C / 1350° F 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 stock as this can cause excessive grain growth creating orange peel surface or poor strength in finished goods.

REMELTING

Use a 30% scrap to 70% fresh mix on nickel white gold alloys. White gold alloys have about 1/3 the re-usability of yellow gold alloys.

INVESTMENT CASTING

Pre-Alloy #800 Series White Alloy and Fine Gold pour into water to make shot.

PRE-ALLOYING TEMPERATURE

1060° C / 1940° F.

CASTING TEMPERATURE

10 K – 1040° C / 1904° F. 14 K – 1000° C / 1832° F.
18 K – 1010° C / 1850° F.

FLASK TEMPERATURE

Use somewhat hotter flask temperature.

QUENCH TIME

8 to 12 Minutes for invested flasks.

TECHNICAL ASSISTANCE

Always available...
Call 1-800-999-3463 / 1-800-999-FINE.
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