



**# 742 YELLOW ALLOY FOR 18K YELLOW GOLD
SHEET, PLATE, AND WIRE FABRICATION**

United # 742 Alloy is formulated for 18 Karat Yellow Gold sheet, plate and wire fabrication giving a standard yellow color. The # 742 Alloy can also be used for Investment Casting if desired. #742 Alloy may be used for enameling.

- MELTING** The # 742 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. Initial melting temperature should be 1070° C/ 1958°F. Drop temperature somewhat before pouring as listed below. 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.
- POURING TEMPERATURE FOR INGOTS** 1020° - 1030° C/ 1868° - 1886° 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.
- QUENCHING** The metal ingot should be removed from the mold and quenched immediately in pickle solution or water. For heavy ingots a one-minute cool down before quenching prevents quench cracking.
- 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. After 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 704° C / 1300° F for 20 minutes. Quench immediately in water or pickle solution. A boric acid fire coat should be applied before annealing in open atmosphere ovens to protect the metal from heavy oxidation. Avoid over-annealing wire or plate stock as this can cause excessive grain growth creating orange peel effect on the surface of finished goods.
- REMELTING** Use a 50% scrap to fresh mix when remelting to prevent oxide build up in the metal.
- INVESTMENT CASTING** Pre-alloy #742 Alloy & Fine Gold, pour into water to make shot.
- PRE-ALLOYING TEMPERATURE** 1060° - 1070° C / 1940° - 1958° F.
- CASTING TEMPERATURE** 1010° - 1020° C / 1850° - 1868° F.
- FLASK TEMPERATURE** We recommend a slightly higher temperature for 18K.
- QUENCH TIME** Wait 5 - 15 minutes before quenching flasks.
- TECHNICAL ASSISTANCE** Always available...
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