

## AussieUni

### R940U

### Technical Chart 9KT

R940U is universal master alloy for 9-18kt red gold. Most suitable applications as below:

- ◆ Can be used in open system casting
- ◆ Can be used in close system casting
- ◆ Can be used in stone in place casting
- ◆ Can be used in continuous casting
- ◆ Suitable for mechanical working application like stamped items, solid and hollow chains, earrings, bracelets and tube rings

#### Physical Characterization Data

COLOR	Deep Pink
DENSITY [G/CM <sup>3</sup> ]	11.12
MELTING TEMPERATURE	990 °C
HARDNESS AS CAST	103 HV
HARDNESS (AFTER COLD WORK 70%)	239 HV
HARDNESS (AFTER ANNEALING)	122 HV
HARDNESS (AFTER AGE HARDNING)	110 HV

#### Casting Parameter

ALLOYING TEMPERATURE RANGE	1110 °C – 1140 °C
CASTING TEMPERATURE RANGE	1090 °C – 1120 °C
FLASK TEMPERATURE RANGE	600 °C – 690 °C

**Trees Without Stones:-** Let the flask cool for 1-2 minutes then quench in water.

**Trees With Stones:-** Remove the flask immediately from the machine. Dip only the bottom part of the tree in cold water and keep under ventilation for 15-20 minutes. Quench in warm water.

### Mechanical Working Parameters

PRE-MIXING TEMPERATURE [°C]	1070-1100
PICKLING	Sulphuric Acid (%10)

Casting Temperature	Metal - from [°C]	Metal - to [°C]
INGOT MAKING	1070	1100
CONTINUOUS CASTING	1090	1170

### Recommended Reductions

SHEET - AREA OR THICKNESS [%]	70
WIRE - DIAMETER [%]	45

Mechanical working recommended annealing	Temperature [°C]	Time [min]
> 5 mm	630 - 670	40
1 - 5 mm	630 - 670	30
< 1 mm	630 - 670	20

### Investment Casting Instructions

Pre-Alloying is strongly recommended simply to ensure better homogeneity in castings as well as in hand made products. Also, for still better results, pre-alloying in an inert atmosphere is always preferred. The actual casting temperatures and flask temperatures shall be decided by the parameters like the section thickness of the items (thick, medium or thin), the overall size/bulk of the cast tree, the design intricacies etc. As a thumb rule, for thinner sections higher temperatures are selected and for thicker sections lower temperatures are preferred. At the same time, designs demanding higher form filling capabilities, higher than normal temperatures are an obvious choice.



## Cleaning, Pickling and Cooling Instructions

After primary removal of the investment during quenching, submerge tree in a hot (80-100 °C) 50% phosphoric acid solution for 15-20 minutes. Rinse well with cool water to remove remaining investment powder and base metal oxides.



## Reusing Scrap Instructions

Before reuse of scraps clean the scrap in best possible manner with the ultrasonic and magnetic polishing machine and remove all the dirt, oil, and greases from the metals. The scrap use percentage is not more than 50%.



## Hardening Treatment

300°C for 100 minutes cool very slowly possibly inside the furnace with a protection of hydrogen. To obtain further hardening increase the time in the furnace.

### Notes:-

The above directions are only indicative. Strong variations to the above data are possible, depending on personal experience. Please, do not hesitate to contact us for further information.



# Aussiemet

Website: [www.aussiemet.com.au](http://www.aussiemet.com.au),

Email: [info@aussiemet.com.au](mailto:info@aussiemet.com.au), [sales@aussiemet.com.au](mailto:sales@aussiemet.com.au),

89 SOMERSBY CIRCUIT, ACACIA GARDENS, NSW 2763, AUSTRALIA