

J4.3 Apply your advanced knowledge of metallurgy to jewellery or silversmithing work SQA Unit Code H9TH 04

Unit Summary

This unit covers the skills and knowledge required to apply a good knowledge of metallurgy to the work that you undertaking. You will be expected to select and prepare the materials for your work and apply specialist techniques to your work.

Performance Indicators

You will be able to:

- a) Carry out the annealing process on a range of materials
- b) Carry out the quenching process
- c) Carry out the pickling process
- d) Carry out hammering of a range of materials
- e) Carry out rolling of a range of a range of materials
- f) Carry out fluxing and de-oxidising of a range of materials
- g) Identify porosity and take preventative action
- h) Carry out identification of precious metal alloys
- i) Carry out soldering of a range of materials
- j) Identify the problems associated with lost wax investment casting
- k) Identify the metal porosity that can result from lost wax investment casting

Knowledge and Understanding

You will know and understand:

- 1) Terminology used by the industry
- 2) The physical and mechanical properties of a range of metals.
- 3) The differences in the mechanical properties of precious metals compared to their alloys
- 4) Re-crystallization after melting and annealing.
- 5) The absorption and expulsion of gasses during the melting and annealing processes
- 6) The causes of contamination when melting and annealing metal
- 7) The expansion and contraction of metal during the annealing and quenching process
- 8) The theory and practice of rolling, hammering, fluxing, soldering and polishing.
- 9) The theory and practice of carrying out pickling safely and effectively
- 10) The causes and prevention of porosity particularly in lost wax investment casting
- 11) The consequences of not initiating corrective action when porosity is identified
- 12) How precious metal alloys are stamped according to assay requirements.
- 13) The consequences of incorrect identification, calculation and stamping of precious metal alloys