

Solder - tests and outcomes

The traditional construction and fabrication techniques used by jewellers to create volumetric three-dimensional forms invariably require the use of silver solders. It is the received wisdom that to enamel directly over a solder seam is problematic and should be avoided. In order to test this a number of seams were produced using different types of silver solder and a variety of enamels were sited directly across the seam and fired. The results are outlined below.

All test were made using 1mm copper sheet. Solder was applied from the back and excess solder was removed from the front surface with a file prior to the application of enamel. Each piece was fired twice at approx 800 degrees centigrade.

Solder type	Solder performance	Soft white enamel 0100 (opaque)	Black enamel 0101 (opaque)	Red enamel (opaque)	Blue flux (colourless transparent)
Sample 1 Hard silver solder	Good/ flows well	line visible	line visible	line visible	line visible
Sample 2 Eutectic solder 50% copper 50% silver	Spreads across the surface more than other solders	No disruption of enamel surface	No disruption of enamel surface	No disruption of enamel surface	No disruption of enamel surface
Sample 3 Enamel grade solder	Good but requires high temp to flow	Dark line visible	Pitted	Blistered	Dark line visible Solder joint opening
Sample 4 IT solder	Poor flow quality	line visible	line visible	line visible	line visible