



Shining Wave Metals

Data Sheet

Mokume-gane

**14k Rose Gold
14k Palladium White Gold
& Sterling Rod**

RMS
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RMS

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14k Rose Gold/14k Pd White Gold/Sterling Rod

COMPOSITION:

Nominal, by weight: 14KR 16.5%, 14KPW 19.5%, Sterling Silver 64%. Silver layers are approximately twice as thick as the gold layers. There are 4 layers of each gold color for a total of 8 and 9 layers sterling, with the two outside layers being sterling. The arrangement of layers is in an ABAC pattern repeated four times, plus one silver layer.

PATTERN:

17-layer 1/4" square rod is stock.

MELTING POINT:

Starts to melt at 1439°F (779°C).

APPEARANCE:

Red and Palladium White golds have the best color contrast with sterling making for a striking pattern. The color will be less warm than the 18kTri/Stg rod due to more white gold and the absence of yellow.

QUALITY MARK:

Could be marked "35% 14K" but this has no legal standing in the USA.

WORKING THE MATERIAL:

Do NOT hot work this material, doing so will void the warranty. The warranty is limited to flaws in the material and does not cover customer mishandling. All rods of this mokume are tested at the factory by rolling, twisting and hammering into sheet stock.

This mokume is easily formed by standard methods including forging, bending, rolling, die striking and stock removal. Anneal after a 30% to 50% reduction has been achieved.

Reverse twisting is NOT covered by the warranty. Pattern is often developed by twisting. Perform this operation cold, twisting by hand until the rod feels too hard, then anneal and twist further, if desired.

Please see the following guide on twist patterning: <https://www.reactivemetals.com/downloads>

Use a solder that flows at a temperature lower than the melting point of the sterling. We suggest using easy or medium silver solders and easy gold solders. The ends of the rod may be sealed with silver or 14K gold solder during the initial stages of rolling or forging, though this is not done during the fabrication process. The solder can be filed off when nearing the final shape of the work.

This mokume can be enameled on with enamels that will work on gold and sterling silver.

ANNEALING:

Recommended annealing temperature is 1100°F to 1250°F (590°C - 675°C). This material may be torch or kiln annealed. This is about a medium red in a dark room, if done by eye. Use a large, soft flame, using a prestolite torch, air-propane or large oxy-propane torch. Use of small or micro torches for annealing is not recommended. Soaking at the annealing temperature is not recommended. Protection from oxygen by coating with flux or annealing in a reducing atmosphere will maintain the brightness of the gold. **Do not quench after annealing.** Let air cool to about 500°F before cooling rapidly. A note to the impatient: Speed cooling can be done by resting the hot metal on a heavy steel plate. Pickle as needed.

Over-annealing in frequency, time and temperature is not recommended. Over annealing can cause excessive grain growth and significantly weaken the metal.

FINISHING:

This mokume may be finished using standard jewelry finishing techniques. Heavy buffing is not recommended as this may smear the surface of the metal and muddy the pattern. Use abrasives and tools that cut rather than grind. If a rotary file tool is used, it is often best to remove the tool marks with abrasive paper or water stones before buffing.

A matte surface will show off the colors of the metals in the mokume. Sandblasting or glass beading can produce interesting results; experimentation with surface finish is recommended before determining a final form.

ETCHING:

Use a 20 to 25% percent solution of Nitric Acid (HNO₃). Mask any areas not to be etched, such as silver solder seams, or non-gold elements with nail polish or some other resist. Carefully watch the object while etching so as not to over etch. Etching often leaves a thin film of silver deposited on the gold layers and this must be removed by the use of a light abrasive and a bristle brush in order to display the colors of the gold accurately.

PATINATION:

If desired the sterling layers may be patinaed after etching as above. Liver of Sulphur or Antique Patina may be used.

Note:

Take proper safety precautions when using any chemicals or tools. This information represents the best knowledge and experience regarding the use of Shining Wave Metals products by their manufacturer, however it is not guaranteed to produce an expected result and is no substitute for experimentation by the user of Shining Wave Metals products.