Shining Wave Metals

Data Sheet

Mokume-gane

5% Shibuichi/Sterling Rod

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5% SHIBUICHI/STERLING ROD

COMPOSITION:
FIFteen layers(15), alternating Sterling (7) and 5% Shibuichi (8) with the Shibuichi being the outer layers. The Shibuichi layers are 2.5 times the thickness of the Sterling layers. 34% Sterling/66% 5% Shibuichi by weight.

QUALITY MARK: No existing category in the current quality marking system.

USES: Jewelry, decorative flatware and other decorative metalwork. Not recommended for continuous skin contact or on utensils that will have contact with food & drink.

MELTING POINT:
Starts to melt at 1435°F/779ºC.

ETCHING:
May be done with nitric acid, ammonia, vinegar (overnight) or by reverse plating. Note: 5% Shibuichi will often form a film of silver on the surface from pickling and etching. To obtain darker oxidation colors using Baldwin's Patina or Rokusho this film must be carefully removed in such a way as to not remove the topography created by the etching. Gently rubbing with fine steel wool, sharp pumice powder and/or the finer grits of 3M radial bristle disks. Repolishing the surface after removing the silver skin may be done by light buffing or use of finer bristle disks.

ANNEALING TEMPERATURE:
Recommended annealing temperature is 1150ºF/620º-ºC. This material may be torch or kiln annealed. This temperature is about a dull red in a dark room. The use of a flux indicator is recommended. To do this, brush a little flux on the surface and heat evenly until the flux melts. Remove the heat source and cool until the flux solidifies and then quench in water. Protection from oxygen by annealing in a reducing atmosphere will reduce the amount of oxide formation on the copper. Pickle as needed to remove oxides on the copper alloys and sterling, taking care not to leave in the pickle too long to prevent unwanted etching. White vinegar may be used as the pickling solution, though it might work somewhat more slowly. Over-annealing in frequency, time and temperature is not recommended as it can cause excessive grain growth and significantly weaken the metal.

WORKING THE MATERIAL:
Do NOT hot work this material, doing so will void the warranty.
This mokume is easily formed by raising, cold forming, die striking and sawing. Anneal after a 40% to 50% reduction has been achieved. Use a solder that flows at a temperature lower than the melting point. Easy and medium silver solder may be used, a test piece with any new batch of solder is recommended.

When developing an incised pattern be sure to allow for stock loss. A good rule is that one will need to start with at least double the thickness of the final sheet or item. Stock loss from twist patterns and combinations of twist and stock removal patterns is difficult to predict but one should allow for at least a 20% loss.

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

FINISHING:
This mokume may be finished using the 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 much better than a high polish. Sandblasting or glass beading can produce interesting results; experimentation with surface finish is recommended before determining a final form.

PATINATION:
The copper alloys will readily patina from handling. This mokume may be patinaed with Baldwin's Patina, Rokusho and some commercial coloring products. Experimentation is recommended, keeping in mind that patinas may change with use and over time.

**** 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.***