



Shining Wave Metals

Data Sheet

Mokume-gane

Argentium Silver/Copper Rod

RMS
Reactive Metals Studio Inc
RMS

PO Box 890

Clarkdale, AZ 86324

928/634-3434 • 800/876-3434 • 928/634-6734F

www.reactivemetals.com • info@reactivemetals.com

ARGENTIUM SILVER/COPPER ROD

COMPOSITION:

Twenty Six (26), alternating Argentium (13) and Copper (13). The Copper layers are 2 times the thickness of the Argentium layers. 38% Argentium/62% Copper 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 1382°F/750°C.

ETCHING:

May be done with nitric acid, ferric chloride, ammonia, vinegar (overnight) or by reverse plating.

ANNEALING TEMPERATURE:

Recommended annealing temperature is 1150°F/620°C. This material may be torch or kiln annealed. The Argentium is highly reflective at the annealing temperature and reading the color can be difficult. 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, but may stain the AS. Pickle as needed to remove oxides on the copper or stains on the AS, 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, though the AS is less prone to this than sterling silver.

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. Special Argentium solder is available thru Rio Grande Albuquerque. Regular easy and medium silver solder may be used, but will tarnish more quickly than the parent metal.

Pressure or stress on this material while hot is not recommended as the AS is somewhat hot brittle. 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.

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 or finely textured 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.**