

Go Neon with Niobium

by Catherine J. Gaber

Are you tired of silver? Is gold too expensive? Are you looking for something fun and different? If you answered yes to any of these questions, then you might want to try working with niobium wire. You can create totally new looks using colorful niobium to execute your favorite solderless chain making patterns.

Niobium wire is generally available in pink, purple, dark blue, teal, green and gold tone. When purchasing niobium for a specific project, buy all that will be needed of each color at the same time. Much like yarn dye lots, color varies slightly from lot to lot. For additional color variety, niobium can also be combined with silver, gold, brass or copper wire.

Before you start to work with niobium, you need to understand some simple differences in the properties of niobium vs other metals. Natural niobium is a silvery colored metal. When it is anodized (an electrical process that oxidizes the surface of the metal), a thin film is deposited onto the metal. The resulting color is determined by the amount of oxidation. This coating is not too fragile for use in most jewelry, but it is far from indestructible.

When winding coils to make jump rings, special care must be taken not to stretch the wire as the color will thin, going a bit grayish. Pliers can easily nick and scratch niobium, removing the color entirely. Plier tips can be wrapped in masking or electrical tape to help prevent damage. The color can also be worn off over time by repeated contact with other materials of the same or greater hardness. Thus, for instance, daily wearing of multiple bracelets can cause the color to deteriorate.

Since niobium is inherently a very soft metal that does not work harden easily, niobium wire that is sold for jewelry making is processed to be "half hard". This means that it is considerably stiffer to work with than copper, silver or gold, which are typically sold "dead soft". This also means that while niobium wire can be used in chain making, it is not recommended for all wire craft, such as wirewrapping.

Coiling, sawing and closing rings are all somewhat more difficult to do with niobium. Special care must be taken in sawing to avoid burrs by using a well lubricated, new or sharp saw blade. (I use bar soap as a dry lubricant and recommend 2/0 jeweler's saw blades, as 3/0s break fairly easily when cutting niobium.) Another thing that should be noted about sawing is that the niobium gets uncomfortably hot very quickly through the friction of sawing. The heat dissipates quickly, but a leather finger guard or other protection may be helpful.

The niobium jump rings do not snap together as neatly and easily as silver rings. When closing rings, go slightly past the perfect join spot, then gently bring the edges back to that spot for the best join. Good joins are essential as the chains can not be put in a tumbler to be smoothed out or they will lose their color. Since soldering would also ruin the color layer, it is fortunate that the links are strong enough to be appropriate for solderless chains.

Niobium is available only in smaller gauges, usually 20 gauge and smaller. I suspect this is because larger gauges would really be too difficult to work comfortably. Even when making a bracelet in 20 gauge, I recommend making the clasp in 22 gauge because it is much easier to manipulate. The difference in size is scarcely noticeable.

Niobium is strong, corrosion resistant and totally hypo-allergenic. These attributes, along with its color versatility, make niobium an excellent choice for jewelry. With a little extra care, it can add new life to your solderless chains.