

# UNDERSTANDING STRINGING MATERIALS

## ***Silk Cord***

Legend has it that sericulture (the raising of silkworms) began in China in 2640 B.C. Raw silk was exported, but the export of silkworm eggs was punishable by death. Silkworm eggs and seeds of the mulberry tree, on which the worm feeds, were supposedly smuggled to Constantinople in A.D. 550; thereafter Byzantium was famed for its silk textiles. In the 8th century the Moors brought sericulture and silk weaving to Spain and Sicily, where exquisite silk fabrics were being woven by the 12th century.

Italy developed great silk-weaving centers—Lucca, Florence, and Venice—in the 13th and 14th centuries. The French city of Lyons became a weaving center in the 15th century. In 1685 the HUGUENOTS, fleeing France after the revocation of the Edict of Nantes, brought the art to England, where it became centered at Spitalfields in London. In the American colonies, attempts to establish sericulture ultimately failed. The *Asian Bombyx mori*, which feeds on mulberry leaves, produces the finest silk and is the most widely raised silkworm. Wild silk is made by the *tussah worm* of India and China, which feeds on oak leaves. After hatching, the larvae feed voraciously on mulberry leaves. When they mature, they attach themselves to a twig and spin a thick, strong cocoon from a single continuous filament of pale yellow silk—about a half-mile long. After about a week, the cocoon is unwound, and the silk is processed. Only enough cocoons to ensure adequate reproduction are allowed to hatch. Silk manufacture begins with the reeling (unwinding) of the silk from the cocoons. In throwing, the raw silk is twisted and doubled to achieve various strengths and thicknesses. The silk is boiled in soap to remove the natural gum, then bleached or dyed. For the jewelry world the cord is twisted double over a twisted wire needle and then carded at 6.5ft. Silk is the preferred material for pearls because it stretches very little and it is extremely limp allowing the pearls to fall without stiffness if tied correctly. Consistent tightness of knots is extremely important in tying pearls with silk, most people still tie by hand, however the Tri Cord knotter helps speed up the process and makes tying knots with equal tension much easier. Silk deteriorates and becomes dirty relatively quickly with normal wear, getting the customer back into the store for a restringing job.

Most jewelers suggest having pearls restrung once a year. This is a great opportunity for stringers! *Many colors, many thicknesses, stretches less than synthetics, great for pearls.*

## ***Hemp***

This annual herb is native to Asia and widely cultivated in Europe. It is often grown for the fiber made from its stems. In the early days, hemp twine was the only product hemp activists could find for sale. Twine is one of the few hemp products which continued to be sold after the prohibition of hemp cultivation in 1937. It is one of the strongest natural fiber twines available. Hemp is sometimes polished with beeswax to give it a smooth finish; it is perfect for braiding or macrame. Thin twine works great for beads or pendants. Medium is sturdier for more demanding applications like macrame. Thick hemp twine is heavy enough for very demanding applications like hammocks.

***See your Rio Grande Gems & Findings catalog for PearlSilk cord, Stretch Magic cord, elastic line, Memory wire and rubber cord stringing options.***

### ***Waxed Linen Cord***

Linen is fabric or yarn made from flax: probably the first vegetable fiber known. Linen fabric dating from 5000 B.C. has been found in Egyptian tombs. Egyptian, Greek, and Jewish priests wore linen to symbolize purity. Brought to northern Europe by the Romans, it became the chief European textile of the Middle Ages. French HUGUENOTS carried the art of working flax to Ireland, still the major producer of fine linen. Power looms were first used to weave linen in 1812, but many textile inventions were not applicable to linen thread because its inelasticity made it break readily. The expense of linen-weaving relative to that of cotton limits its use. It is woven into fabrics ranging from heavy canvas to sheer handkerchief linen and cords. For jewelry purposes it works well with most beads. Waxed linen cord for jewelry is usually comprised of five twisted strands. It can unravel with wear if too much cord is left exposed. *It knots and braids well, and works well for macramé.*

### ***Artificial Sinew***

Imitation sinew is a flat, waxed linen cord that is great for trade beads, mountain man designs, and heavy ceramic beads. It is 1/8" wide, but can be twisted to fit beads with 1mm holes, or tied around quartz and other natural crystals (we recommend a bit of glue for crystals). It is often knotted, or used with handmade findings. It looks real, but it is not an animal product. *Can be separated into thinner pieces; available in white or tan; used to make Dream Catchers.*

### ***Waxed Cotton Cord***

Cotton is the name of a shrubby plant (genus *Gossypium*) of the mallow family, for the fibers surrounding the seeds, and for the cloth woven from the spun fibers. It has been spun, woven, and dyed since prehistoric times. Most commercial cotton in the U.S. is from *Gossypium hirsutum*, but some is obtained from sea-island and American-Egyptian *Gossypium barbadense*. Cotton is planted annually by seed. Diseases and insect pests are numerous (the boll weevil, for example) and responsible for enormous losses, particularly of the highly susceptible, silky-fibered sea-island cotton, which was the leading type of cotton before the advent of this pest. Cotton is separated from its seeds by a cotton gin. Manufacture of cotton into cloth, textiles, and yard goods involves carding, combing, and spinning. Used in Egypt, China, and India in ancient times, cotton has long played a significant role in world industry. Britain's need for imported cotton dictated much of its sea-domination policy as an imperial nation, and in the U.S., cotton was a principal economic cause of the Civil War. Water doesn't seem to adversely affect waxed cotton. (Water and wear make the color less shiny than when the cord is new, but the cord itself is quite durable.).

### ***Leather Cord***

Most round leather cord is produced in India. Large hides are placed on spinning tables and a cutter is placed at the center. The hide begins to spin, and the cutter in the center slowly moves its way to the outside. After the single lace of leather is completely cut, it is placed into a forming cutter that cuts away at the strip until it becomes round. Finer-quality leather is attainable from Greece and is manufactured in much the same way with closer attention to detail and quality. Leather cord is very easy to work with, and just about any beads will work as long as the holes are large enough to fit the cord. Round leather comes in many sizes, usually ranging in diameter from 1.2mm to 6mm.

## MANMADE/SYNTHETIC CORD

### ***Simulated Leather Cord***

There are many different names for simulated leather cord, however most are of the Genya type. This is a polymer material of unknown origin. The manufacturer and their distributors have kept Genya extremely guarded and we are not sure of its exact chemical make up. It is more regular in size and color than genuine leather cord. It also knots well and is not affected by water.

### ***Polyamid or Nylon***

Wallace Hume Carothers, who has been called "one of the most brilliant organic chemists ever employed by E.I. du Pont de Nemours & Company," spent only nine years at Du Pont before his death. But in that time he made contributions to the theory of organic chemistry that led to the invention of polymeric materials such as the synthetic materials nylon and neoprene, the first commercially successful synthetic rubber.

During his brief period at Du Pont, Carothers first worked on the polymerization of acetylene and its derivatives; this led to the development by other scientists of neoprene. His most outstanding work involved the theory of linear polymerization, which he tested by synthesizing a large number of polymers structurally similar to cellulose and silk. This work culminated in the production of nylon, which is today used in a wide variety of applications including apparel, carpeting, home furnishings, industrial products, and jewelry. The invention of nylon marked the beginning of a new era of synthetic fibers which is still expanding.

Nylons are one of the most common polymers used as a fiber. Nylon is found in clothing all the time, but also in other places, in the form of a thermoplastic. Nylon's first real success came with its use in women's stockings, in about 1940. They were a big hit, but they became hard to get, because the next year the United States entered World War II, and nylon was needed to make war materials, like parachutes and ropes. But before stockings or parachutes, the very first nylon product was a toothbrush with nylon bristles.

Nylons are also called polyamids, because of the characteristic amide groups in the backbone chain. Proteins, such as the silk nylon was made to replace, are also polyamids. These amide groups are very polar, and can hydrogen bond with each other. Because of this, and because the nylon backbone is so regular and symmetrical, nylons are often crystalline, and make very good fiber.

Needle-end cord is easy to use, because a very fine twisted needle is built into the end of the cord. This eliminates trying to fit tiny beads over an eye thicker than the bead's hole. We recommend making the first necklace at the far end of the cord so the needle remains with the cord for the next project.

*Great for "Tin CUP" designs, many colors, less likely to fray, stretches more than silk.*

### ***Nymo Cord***

Multi-filament or mega-filament bonded cords fall in the "nylmo" category. Polyamid-bonding impregnation holds multifilaments together inside of an encapsulated HR lubricant. Nymo bead thread requires a needle (usually a stiff English beading needle) and is commonly used for Native American– style bead work (such as Peyote stitch). It also works well with a big-eye needle for liquid silver beads. It is very thin, so it can go through most beads multiple times. Nymo provides double the strength of equal-size cotton thread. You can sew with Nymo cord or put bead embroidery on fabric designs.

### ***Stringth Cord***

Stringth is another synthetic fiber cord. It is very strong and tends not to fray, shred or stretch. It has a smooth finish and can be used on many types of beads. As with other synthetic or natural fiber cords, use care when mixing metal beads into your designs. Metal beads may have sharp inside holes (from the mechanical punching out of the hole) that can quickly cut the material. By coating the end of the length of Stringth with cyanoacrylate (Super Glue) and letting it dry, you can use it as a needle. This takes a bit of practice and does not give enough strength to go back through beads (as when ending or starting a strand of pearls).

### ***Woven Translucent Cord***

This describes any braided monofilament nylon used specifically where a somewhat invisible cord is needed. The braiding gives added strength and security against the cutting possibility of crystal beads.

### ***Polyester Cord***

Polyester is made by combining ethylene glycol (an alcohol) and dimethyl naphthalate (an ester). When the two come together a reaction called transesterification occurs. This process causes many molecular changes; the end result is that the molecular structure of both materials trades places. This transfer produces methanol as a by-product. This is removed by boiling, and more transesterifications are forced until the molecules formed get bigger and bigger and high-molecular-weight PET (polyethylene terephthalate) or Polyester is created.

Liquid Silver beads are the usual choice for white polyester cord. It is smooth and doesn't shrink if it gets wet (cleaning liquid silver beads usually requires rinsing in water). If you are stringing liquid silver beads we have a little secret. Pour liquid silver beads into a 9" pie plate on a lazy Susan. Using the longest needle you can find, spin the lazy Susan and adjust the angle of the needle in the spinning liquid silver. The liquid silver beads will begin to load themselves onto the needle and ultimately onto the polyester cord!

### ***Waxed Thread (Jewelry twine)***

Made from three-ply polyester cord, this cord is ideal for stringing heavy beads such as glass, porcelain, or wood. It can be knotted and is very durable. Waxing is done to prevent fraying. Laces usually hang well because of the weight of the strand.

### ***InvisiLine***

Extremely thin, transparent monofilament-type line supports one or a few lightweight beads or crystals. Beads appear to float unsupported due to the invisible quality of the cord. This line knots well and is finished with a clasp finding. Glue knots with Jeweler's cement. Light test weight prevents use with expensive stones, crystals, or beads.

### ***Elastic Cord***

Elastic Cord is usually used for adjustable jewelry, especially where coordination might be a problem (great for children's jewelry). Use the heaviest cord that will work for your beads. Elastic cord is normally tied off near a large hole bead, so the knot can be hidden inside the hole of the bead. Larger crimp beads can be used to finish elastic cord. It should not be used for expensive jewelry, as it breaks down over time.

### ***Tigertail***

Tigertail is one of the easiest materials to string with. It doesn't need a needle, and the ends are easy to finish with crimp beads. Lightweight necklaces can sometimes seem stiff and don't look good, but heavy necklaces usually hang fine because of the weight. Tigertail is easily kinked because it consists of only 7 strands of steel inside a nylon casing. Kinking also weakens the overall strength.

### ***Beadalon Wire***

Is similar to Tigertail, but stronger, and has a nice flowing finish. Beadalon wire resists kinking because of its 19 or 49 strands of steel inside a nylon casing. It is very easy to use, and you do not need a needle. Beadalon wire is an excellent choice for valuable beads or beads with small holes such as Garnet, Amethyst, any of the beads that could have "hour glass" holes.

### ***Foxtail***

Foxtail has traditionally been used as an extremely strong beading material for heavy metal beads designs such as Squash Blossom necklaces or heavy stamped bead strands. This material is braided circles of nickel wire. Please stop by our bead stringing booth and ask for a demonstration on how to finish this material to take advantage of its full strength.

### ***Satin Cord***

Also known as rattail, this shiny cord used for single- and multiple-strand necklaces and bracelets. It is often used with one large centerpiece or single bead, and a few (if any) side beads. Rough or sharp edges fray this cord; be cautious of the bead edges on the centerpiece. Jump ring edges or rough places can start the fraying. Cord ends are normally finished with fold-over tips or bullet ends. Suggested accessories for satin cord or rattail are: necklace tubes (for pendants), and either bullet ends (for multiple strands) or foldover crimps for single strands.



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