Do You Have Wire in Your Wire?

Silver, Copper, and Gold all serve as the foundation of wire technology. They have similar properties with each having some small unique characteristic. They all, however, are *metals* prone to deterioration, oxidation, hum, Radio Frequency Interference (RFI) and are greatly affected by how they are wound and encased. Teflon and other exotic means are employed to minimize the effects of dielectrics on the performance of cables, but each is designed to address the inherent problems of "wire", which are the nature of metals. These include time honored design properties such as skin effect, magnetic induction, and capacitance. You can design cables to minimize the effects these properties will have on cable performance, but they will always be *inherently unstable* signal platforms.

Cerious Technologies endeavored to develop an inherently superior conductor, one that did not share the common weaknesses found in metal based conductors. Research into advanced composites for the defense industry revealed that many failures of ceramic based ballistic armor was a direct result of the inability of ceramics to dissipate high levels of Electro-Magnetic Forces (EMF) that occur during ordinance strikes. Since traditional ceramics do not conduct electrically, they are unable to disperse and dissipate EMF. Development began on a family of *Synthetic Ceramics* that when combined as a composite structure, displayed conductive properties far beyond that of metal based conductors.

Enter a New World of Composites

So, what *exactly* does conduct the signal in ***Cerious Technology*** cables? Due to the proprietary nature, *exact* descriptions are not forthcoming. Essentially, a composite micro fiber is saturated with a liquid synthetic ceramic forming the conductor. The micro fibers are extremely fine in diameter and wound under high pressure forming a *conductive lattice* of conductive elements. This conductor is inherently non-magnetic and does not share characteristics normally associated with metal based conductors, such as skin effects and absorption of RFI and EMF. Further, it is very low in mass which affects its mechanical energy storage properties.

Discussions virtually always focus singularly on the electrical aspects of cables, neglecting what may have an even greater effect on the sonic nature of cables - the mechanical elements of vibration and structural resonance that occur within the conductive bundle. Many aftermarket devices are sold in an attempt to physically dampen these internal vibrations, both in the form of damping "pads" and devices attached directly to the cables themselves. When playing dynamic signals through traditional metal based cables, you can literally feel the cables vibrate or "surge" when passing higher levels of current. Modern physics theory cannot explain the "sound" of cables based on what we know with direct regard to just their resistance, inductance and capacitance, yet the sphere of cable mechanics is rarely even hinted at. Due to the original application for which these new conductive platforms were developed the effects of vibration, both external and internal, were the focus of ground breaking research on the "impact" of mechanical vibration on cable performance.

The cross section of a ***Cerious Technologies*** conductor reveals a spiral formation of saturated micro fiber tubes with the spaces between the tubes filled with synthetic ceramic. This cross section is familiar and occurs frequently in nature, such as in the stems of plants and leaves. It maintains structural integrity through the tube structure, yet is well damped by the channels of fluid. Each conductor bundle is then fed through a slightly smaller diameter medical grade pure Teflon tube compressing it to "load" the liquid further increasing its damping properties. Before insertion, however, each conductor is covered in an anti-static liquid to lower the noise floor and to "seal" the conductor bundle. Here we can see another difference between the composite conductor and metal based conductors. If we were to apply a similar liquid directly to copper or silver it would sound better for about two days, then it would begin to oxidize and degrade. Shield and damping techniques must be employed *after the jacket is applied* in metal conductors so they do not directly affect the oxidation of metal conductors greatly diminishing their positive effects. Damping treatments can be *engineered into* composite structures as integral elements of their design and function. Again the concept of *inherent* versus *"Band-Aid"* is key to performance.

The Creation of a System

Mechanical stability must be broken into two separate and distinct components - internal and external. Internal stability is the conductive element and the external is the entire "cable", which includes multiple conductors and shielding. Internal stability of the conductor is controlled by those elements previously described, but what happens when multiple conductors are combined within a jacket? Clearly each conductor can affect the performance of others located within close proximity. Here we have an application for *reactive ceramics*, or fluids that physically respond to movement actively canceling out these vibrations.

Each ***Cerious Technologies*** cable employs a *reactive liquid ceramic damping jacket* which actively responds to both internal and external vibrations. This synthetic ceramic is non-conductive and has excellent rejection properties of RFI and external magnetic fields. The material used for this active damping jacket is unique in that it moves continually between a solid and liquid state "settling" into a solid locking the conductors in place, but liquefying when under the influence of vibration. Through this dual state action the cables will actively "search out" vibration and magnetic modes within each cable and, over time, destroy them. For this reason each cable will continue to improve in performance over time as the cable reaches stability.

Long Term Performance

The goal of long term performance has been realized with ***Cerious Technologies*** radical composite conductor technologies. Superior performance in a sonic picture that is vastly lower in both internal and external noise allowing low level sonic cues to be revealed against a dead quiet background. Conductors that are free from the effects of oxidation and long term deterioration, serving music faithfully while maintaining their original sonic performance. Reactive synthetic ceramic jackets that are self-healing, to ensure their performance will never falter and the investment made in these remarkable cables will maintain their value over many years of listening pleasure. We look forward to sharing the achievement of these cables bringing new life to your acoustic experience. *Enjoy...*