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WHAT MAKES a cable green?

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PERSPECTIVE

The green wire: Sustainability and cable manufacturing

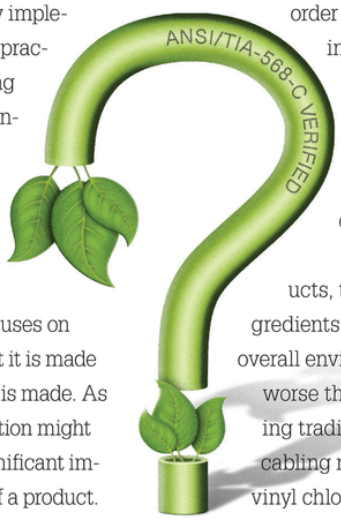
What makes a cable truly green: Its materials, its manufacturing process, its use, or some combination thereof?

BY ERIC PERRY, AMIR SEKHAVAT, and JAMES NEELEY; SUPERIOR ESSEX

What is a "green" cable? As the importance of environmentally conscious products continues to grow, "green" has become a go-to catchphrase for organizations looking to project an environmentally responsible image. The cable manufacturing industry is no different, and many organizations have been quick to jump on the bandwagon. But what does it really mean to call a cable green? Is it a sustainable product? Is it a product that contributes to green-building certifications, or a product that is free of certain substances? Is it practicing environmental responsibility during the manufacturing of a product? Or is it all just greenwashing?

In the cable manufacturing industry, there are generally two ways in which cables are identified as "green." First, products can be deemed environmentally friendly based on their ingredients or the ingredients that have been excluded from their composition. Generally, these types of cables avoid using materials that have been deemed harmful to human and ecological health by government agents and agencies such as the European Commission for the Environment and the U.S. Environmental Protection Agency.

Second, there are cable products identified as "green" as a result of the manufacturing practices with which they were produced. These types of cables have been manufactured in such a way as to limit the environmental impact of their production by implementing sustainable practices such as recycling materials, reducing energy consumption, or diverting waste from landfills.



This distinction is relatively simple. One approach focuses on the cable itself—what it is made of. The other—how it is made. As simple as this distinction might sound, it makes a significant impact in the lifecycle of a product.

Examining ingredients

A "green" cable with a focus on what it is made of might contain fewer hazardous ingredients in the final product, but it could be made in such a way that this particular benefit is eclipsed by the environmental impact of its manufacturing process. Furthermore, the goal of ingredient restriction is typically not sustainability, but rather to achieve a certain safety rating. For example, low-smoke, halogen-free cables place restrictions on ingredients such as chlorine, fluorine, and other halogens that could be hazardous when burned, in order to receive the UL listing of "LSHF," which denotes a certain safety rating of a product and not the sustainability or "green-ness" of a product.

For halogen-free products, the restriction on ingredients might actually have an overall environmental impact far worse than that of a product using traditional communications cabling materials such as polyvinyl chloride (PVC). In 2008, the EPA published the study "Wire and Cable Insulation and Jacketing: Life Cycle Assessments for Selected Applications," which evaluated the impacts of halogen-free jacketing and compared them to that of PVC jacketing. The EPA study found that the cradle-to-grave impact for halogen-free materials, including electricity usage and materials used for production, was

significantly greater than that of PVC, making this option even less desirable for those companies truly concerned with environmental responsibility.

Non-traditional cable ingredients such as biodegradable materials may also negatively impact the product lifecycle and performance. A cable jacket made of biodegradable materials is likely to have a shorter lifespan, which would in turn increase the amount and regularity of labor that is needed to uninstall and re-install that cable once it begins to deteriorate. The amount of cable required to meet those installation demands also increases, so if the labor and manufacturing are not sustainable, then any environmental benefits touted by this sort of product may be nullified by the process of making and installing that very same product.

"The safety and performance standards for communications cables are too high to use any truly environmentally friendly plastics that are currently available," says Steve Born, RCDD, LEED AP BC+D, senior applications engineer for Superior Essex. "No one would want a cable that is made of biodegradable materials because it would not work very long or perform at the level we demand from our products. That's why it is necessary to use ingredients like PVC in our cable products. Not only do they assure higher levels of performance, but overall they have been shown to be less impactful to the environment than other plastics used in communications cabling."

Manufacturing processes

The second "green" cable approach focuses on how a cable is made and seeks to manufacture in such a way as to limit and reduce the overall environmental impact of the manufacturing process through the aforementioned methods of recycling, conservation, and waste management. This approach not only takes into account the scarcity of natural resources like water and energy, and seeks to reduce the usage of those resources; it also seeks to reduce the material waste generated during manufacturing in order to prevent more waste products from re-entering the environment. While the end products may not be considered environmentally friendly based on their composition, the process to make them might be significantly more "green" or sustainable than that of their counterparts, and generally promotes reductions in the negative lifecycle impacts of those products.

This approach is more difficult to implement, as it requires significant planning, evaluation, and investments into developing sustainable processes. But it also makes a larger impact because it requires persistent, enduring commitments to those processes once they are in place.

So which one of these types of cable is truly "green"? The truth is: There is no such thing as a "green" cable. In fact, the ingredients making up most cable products, even those products that have ingredient restrictions, and the manufacturing processes which produce them, make it nearly impossible to have a final product that is truly and totally sustainable.

Not created equal

But this does not mean that all cables are equal in terms of their environmental sustainability. In fact, there are numerous ways for cable manufacturers to be more sustainable, and an ocean of certifications, initiatives, incentives, and opinions that assess the sustainability of products and organizations alike. These options, sourced from governments, private organizations, academics, and scientists all over the world, can offer guidance to organizations seeking to achieve higher levels of sustainability in their products and practices.

Tad Radzinski, president of Sustainable Solutions Corporation (www.sustainablesolutionscorporation.com), has evaluated the operations of numerous organizations in order to help them increase and document their sustainability. "Continued growth in the green building market has increased demand for sustainable building products across the board," says Radzinski. "With varying definitions for what makes a product sustainable, manufacturers and customers alike are looking to meet the requirements of green building codes and standards. There is an apparent need for a broader understanding in this area to prevent greenwashing and provide the greatest overall benefit."

As Radzinski points out, it is important for cable manufacturers to identify which of these sustainable routes would be most valuable to them and their customers, and equally important for those customers to understand the realities of their suppliers' environmental claims. This is particularly true as the demand increases for green buildings and associated "green" products. The U.S. Green Building Council reports an estimated 40 to 48 percent of new non-residential construction will be seeking green-building certification. (Source: McGraw Hill Construction [2010]. Green Outlook 2011: Green Trends Driving Growth) This growth extends beyond the U.S. too, with more than 69,000 active and

complete LEED building projects in more than 150 countries. (Source: U.S. Green Building Council [2012] Green Building Facts) Consequently, there is an even greater push by manufacturers and suppliers to label their products and processes "green" so that it might fill the demands of that market. But that doesn't mean customers are always getting what they pay for, because any organization can apply a "green" label to itself and its products and receive the associated value and press, whether or not those products and operations actually promote environmental sustainability.

Claims versus reality

While it is true that many suppliers and manufacturers of communications cable offer some information about the sustainability of their products and operations, this information can be inflated, spurious, and sometimes false. Many suppliers have their products manufactured by third parties halfway across the globe, making it extremely difficult to verify any claims about the environmental impact of those products and manufacturing practices. Numerous manufacturers also make claims about the sustainability of their operations and products, but don't have third-party verifications to support those claims, and even fewer are willing to publish the hard numbers about their environmental impact, such as their landfill waste diversion rate.

Instead, organizations often give statistics about their improvements in recycling, conservation, and waste management. Without the baseline from which their improvements were measured, these statistics can be misleading. For example, a manufacturer might claim to have improved their waste diversion numbers by 100 percent, but if their waste diversion rate was only 5 percent to begin with, and the improvements brought them to 10 percent, that manufacturer is still sending 90 percent of its waste to landfills. While these sorts of improvements are commendable and should be pursued, they should not be considered equal to those organizations that have achieved landfill waste diversion rates upward of 80 to 90 percent. Unfortunately, as a result of both greenwashing and lack of marketplace education, they often are.

With all this potential misinformation, how can a customer know if a product or an organization is sustainable? Looking for third-party certifications and product transparency is a good place to start. Examples include Health Product Declarations (HPD), which disclose the health impacts of a certain ingredient or set of ingredients, and Environmental Product Declarations (EPD), which provide a complete lifecycle assessment of a product. While these certifications may not individually provide the overall sustainability of a product or an organization, when examined collectively they can offer a more-complete picture of the sustainability of a product, as well as the sustainability of an organization's processes and practices. This not only helps companies evaluate their own environmental impact and target areas for improvement, but it also assures that the environmental

claims made by those companies are both accurate and true.

Taking the lead

Some cable manufacturers have actively sought and published third-party transparency documentation. In 2014 Superior Essex was the first to publish Environmental Product Declarations and Health Product Declarations for a large selection of its premises copper and optical fiber data cables. These declarations are the result of a long-standing, longsighted sustainability initiative that has included significant reductions to materials waste and energy consumption in their manufacturing facilities, as well as achieving a landfill waste diversion rate of more than 90 percent. In addition to allowing select Superior Essex products to contribute points toward LEED certification, these efforts have set the benchmark for transparency in the industry and placed Superior Essex at the forefront of environmental responsibility.

Transparency and veracity of environmental claims are not only important to manufacturers like Superior Essex, but also to organizations with an interest in sustainability or green building. More frequently, these organizations are demanding some form of third-party-verified transparency documentation. This includes organizations like Google, which offered a grant of $3 million to the United States Green Building Council, and which actively sponsors organizations like the Health Product Declaration Collaborative, which sets the standard for publishing HPDs.

"Purchasers today have a tough job," says Paul Firth, manager of the EPD program at UL Environment, a division of the independent safety science company Underwriters Laboratories (www.ul.com). "They need to be able to evaluate a product quickly while at the same time looking at certain details that their organization deems are important. This is why performance-achievement labels, as well as transparency labels, are valuable tools for manufacturers and suppliers to obtain and offer to their customers."

In the end, the choice between one cable and another ultimately falls to the customer and their particular needs. No cable is truly "green," but those interested in the sustainability of the products they specify and purchase should demand an accurate and complete education on the sustainability of those products from their suppliers. With equal measure, it is the responsibility of manufacturers and suppliers to educate their customers about sustainability, how it is achieved, and how it can impact their customers' installations in the present and the future.

If there is one thing we can all agree on, it is that practicing some level of sustainability is better than practicing none at all. As Tim Waldner, president of Superior Essex, states, "Sustainability is more than just a company objective. It's an ethical responsibility to our communities and to future generations. We should all make the commitment to improve the environmental sustainability of our operations and products, and to lead by example."

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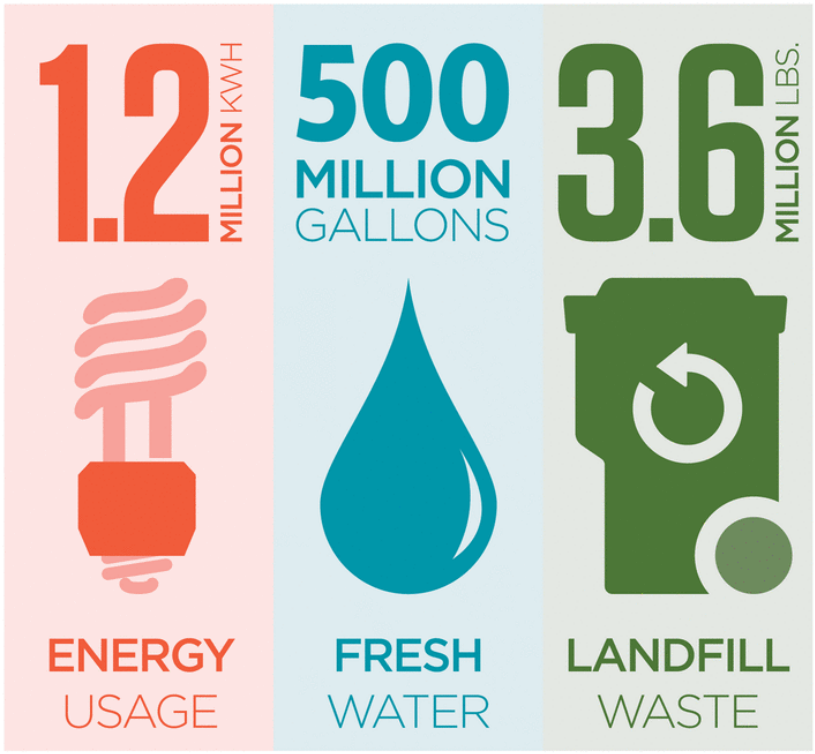

*Numbers based on annual savings.

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