



EDITION C2

VOLUME 1

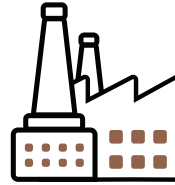
15 THINGS TO KNOW ABOUT SUSTAINABLE ATTRIBUTES AND PRODUCTS

WRITTEN BY: Dr. Yuhsin Hawig, VP of Applications Engineering | Erika Akins, P.E., Applications Engineering Manager



DELIVER POWER RESPONSIBLY

Southwire is committed to providing the highest quality products and we are dedicated to protecting the well-being of our communities and the environment. The life cycle of products is scrutinized from the extraction of raw materials, manufacturing processes, designs, code & standard compliance, installation efficiency, performance, to the energy consumption until the final disposal. We lead the deployment of renewable technology to achieve zero carbon. We also reinforce the electrical grid to withstand more frequent occurrences of extreme weather, as a result of climate change.



MANUFACTURING & ASSEMBLY

Southwire has invested in multi-year modernization projects to make a 70-year-plus company sustainable for the next 100 years. During manufacturing & the final assembly of finish goods, we seek every opportunity to reduce hazards, which can be anything that poses a threat to the safety and the health of workers or the environment. Removing waste and recycling scrap to attain the best output have been the top priority for decades. We put heavy emphasis on economically-sound processes that are vertically integrated to conserve energy and natural resources to make each product.



5 ATTRIBUTES OF SUSTAINABILITY

Many organizations around the world define sustainability differently as there are goals and governance that are more important to a specific industry. This engineering whitepaper outlines five critical attributes, which span the entire product life cycle, to enable Southwire to innovate and to offer sustainable solutions. These products can be implemented in more than ten diverse applications including data centers, utility, mass transit, factory automation, renewables, telecom, healthcare, automotive & electric vehicles, ports & terminals, residential, and commercial.



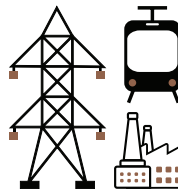
INSTALLATION

Once the wire & cable products are delivered to the job site, they will be unloaded, unreeled, pulled, bent, and laid at the final destination. Every step of the way could be labor-intensive, time-consuming, and error-prone to trigger severe physical damage to products and cause injuries if not handled appropriately. Safer, ergonomic, and more effective installations can be executed by reducing hazards or waste, renewing packaging or reel handling systems, raising flexibility, reducing pull tension, and more. Southwire has sold many patented inventions that yielded sustainable installations globally.



RAW MATERIALS

Sustainable materials can be achieved by creating safer chemical formulations with less hazardous substances to lessen the environmental footprint or with "Living Building Challenge Red List" approved compounds to prevent serious risks to human health. It can also be accomplished by adopting renewable energy such as solar to power raw material productions. Furthermore, increasing the recyclability of all components and upgrading packaging designs are commonly utilized. Finally, sustainable procurement, which integrates social, ethical, and environmental requirements into the qualification of suppliers, is a must.



USE PHASE

Multiple factors will determine the sustainability of wire & cable products after the system has been energized. Firstly, using sustainable materials designated low-smoke and/or zero-halogen reduce hazard that compromises the health, safety, and the environment. In the event of overheating due to short-circuit or fire, these products generate fewer toxic gases. Secondly, products can be designed to carry a greater ampacity with less energy loss. Lastly, these products can also boost grid resiliency in case of natural disasters such as hurricanes or severe environmental conditions such as corrosive saltwater, heavy UV rays, or wildlife attack.



Southwire®

15 THINGS TO KNOW ABOUT

SUSTAINABLE ATTRIBUTES AND PRODUCTS



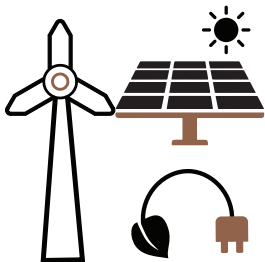
END OF LIFE

The wire and cable products manufactured today can achieve an average life of 40 years if designed, installed, and operated properly. Using ruggedized systems can extend the ultimate service life, which in turn delays replacement. A shorter downtime and less likelihood of worker injuries during cable replacement should be considered. Southwire offers field repair and rejuvenation services to further extend the life of cables. When aging assets need to be disposed of, better recyclability can be found on cables extruded with thermoplastic or non-crosslinked insulations and jackets or conductors containing a single metal instead of mixed metals.



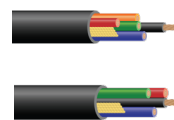
SIMpull® COILPAK™ AND BARREL™

SIMpull® CoilPAK™ paired with a low-friction SIMpull® T90 Nylon or SIMpull® RW90 is sustainable as it lessens the physical burden of material handling with a major reduction in pull tension. It is a space saving design when bundling multiple wires in a single package. SIMpull Barrel™ allows branch circuit installations with the uttermost safety and productivity. No need to worry about broken reels, flanges, or torn arbor holes. A variety of products can be shipped in SIMpull Barrel™ including type MC cables. The drum holds longer lengths, which shortens the time to change over and reduces wire remnants on site.



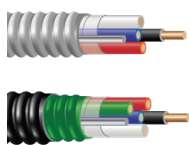
SUSTAINABLE PRODUCTS

Southwire offers over 120 different sustainable products and many of those are deployed specifically for the explosive growth of renewable industries including electric vehicle (EV), wind & solar power, battery energy storage systems (BESS), and mass transit. Our sustainable solutions can also be seen at residential homes, commercial development, industrial & OEM applications, as well as utility grid projects. This technical document showcases six product examples, and more can be found on the Southwire website [CLICK HERE TO VIEW](#).



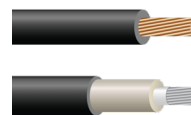
EV CHARGING

With a growing interest in clean energy coupled with the advancement of lithium battery production, electric vehicle adoption for residential, commercial, and government entities is happening at a record speed. Southwire's EV charging cables, building wires, and medium voltage cables to power the pedestals play a critical role in the supply chain to fulfill the enormous demand in the years to come. These products to support EV are sustainable due to the reduction of greenhouse gas emissions from transportation.



POWER & CONTROL/SIGNAL TYPE ACIC

Power & Control Type ACIC reduces terminations per box and declutters the wiring, therefore, this is one of the best examples of a sustainable product due to user advantages during installation. These include simplifying grounding connections with fewer parts, boosting grounding reliability with the integral ground laid under the armor, and less mechanical connections. Eliminating one termination in every outlet with less room for error and cutting up to two minutes of installation time per connection could lower the overall project cost up to 50%.



LOW SMOKE ZERO HALOGEN (LSZH)

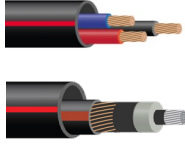
Safer and environmentally friendly modes of public transportation is a necessity as urbanization stresses existing traffic corridors. Heavy smoke and toxic gases are harmful, hence low smoke zero halogen (LSZH) materials are the best choices for public safety in the event of a fire in less ventilated space such as tunnels used for mass transit. LSZH designs are commonly specified for manholes and underground installations located in densely populated areas. Southwire's sustainable SOLONON® and SOLONONplus® products include traction power cables, medium voltage, and Teck 90 with overall LSZH jacket.





15 THINGS TO KNOW ABOUT

SUSTAINABLE ATTRIBUTES AND PRODUCTS



SIMpull® (CIC) CABLE-IN-CONDUIT

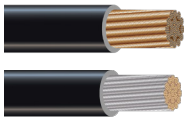
Widespread power outages from natural disasters in recent years has expedited the hardening of our electrical grid. This can be accomplished in several ways. One is to convert critical overhead lines to below grade networks either by using cable-in-conduit (CIC) or ruggedized underground cable constructions. Pulling a single reel containing cables protected by a durable high-density and halogen-free polyethylene (HDPE) duct not only saves labor and reduces installation time, but also prevents field injuries due to material handling. CIC is sustainable because it is safer than direct burying cables and it extends life, lowers cable replacement frequencies, and shortens outage duration.



CABLETECH SUPPORT™ Services

CABLETECHSUPPORT™ SERVICES

Southwire's CableTechSupport™ services offer many reference documents and whitepapers to help end users with the selection of products for the most challenging applications. Our mission statement, Re3™, was formed based on sustainability: to design Reinforced, Resilient, Reliable products and provide services to Respond, Rectify, and Restore. You can access the publications directly from the website. **CLICK HERE TO VIEW.** We have a track record of successful custom engineering solutions not only meeting sustainable criteria but also exceeding long-term electrical, thermal, mechanical, and environmental performances.



MachineFLEX™ POWER THERMOSET LSZH & RW90

RoHS stands for "Restriction of Hazardous Substances", and it governs many electrical products. RoHS-2 (2011/65/EU) directive includes a CE-marking, with RoHS compliance now being required for CE marked products. Southwire's MachineFLEX™ power cables designed with a thermoset LSZH (LSZH-TS) or XLPE (RW90) insulation are compliant with CE/RoHS-2 in that they meet the material restriction requirements. These halogen-free crosslinked flexible power cables contain high strand counts, which allow the crew members to bend larger feeder cables with less force. They are sustainable because they prevent injuries, save labor, and reduce installation time on the jobsites.



Southwire®