



## Dow Electrical & Telecommunications

# Complete Solutions for HV and EHV Underground Cables

Understanding that collaboration is essential to success, Dow Electrical & Telecommunications (Dow E&T) works together with cable makers, other industry suppliers, utilities, municipalities, testing institutes and other organizations around the world to develop solutions and create mutual value that will sustain these industries for years to come.

Our philosophy to exceed expectations begins by offering an industry-leading portfolio of jacketing, insulation and semiconductive materials. Backed by sophisticated technology and compounding facilities around the world, as a materials supplier Dow E&T can efficiently leverage assets to address challenges that are specific to the manufacture of most types of cables.

A global team of dedicated staff provides support to utilities and cable manufacturers, and addresses the challenges of the future through its research and development centers. Dow E&T works with the whole value chain to help provide technology-based solutions for today and tomorrow.

### Benefits for power deliverers

Dow E&T goes to tremendous efforts to help ensure premium quality high voltage (HV) and extra-high voltage (EHV) compounds from the moment of resin production to arrival at the cable manufacturer's site. For insulation compounds our process includes:

- Continuous optical checking during production
- Outstanding materials delivery systems
- Cleanroom material handling facilities

This continual quality control throughout the entire production process helps us deliver compounds that meet or exceed the highest international standards.

Dow E&T constantly strives to improve its materials to meet the challenging and demanding needs of the power delivery industry. Our insulation and semiconductive compounds have been designed to work exceptionally well together to help deliver the highest possible performance throughout the life of the cable.

### HV and EHV recommended solutions

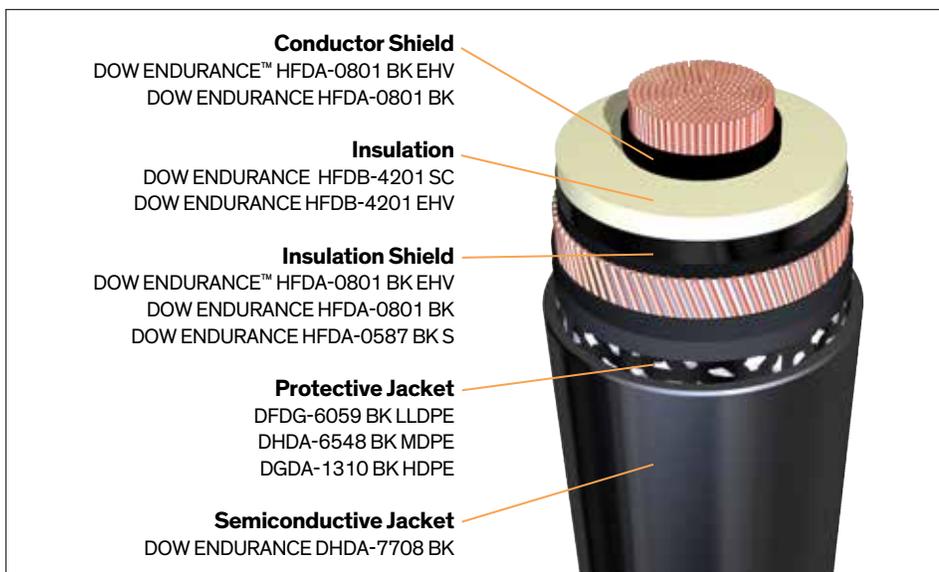
Dow E&T offers a complete product solution for the manufacture of HV and EHV underground (UG) cables – from 69 kV to 500 kV. This product line of exceptional materials was recently renamed DOW ENDURANCE™.

For HV (69 kV through 230 kV) the recommended solution consists of DOW ENDURANCE HFDB-4201 SC compounds for insulation, and DOW ENDURANCE HFDA-0801 BK for inner and outer semiconductive layers.

For EHV (above 230 kV) the recommended solution consists of DOW ENDURANCE HFDB-4201 EHV compounds for the cable insulation, and DOW ENDURANCE™ HFDA-0801 BK EHV for inner and outer semiconductive layers.

Although we urge manufacturers to use our recommended solutions, we also offer conventional semiconductor shield compounds, including HFDA-0587 BK S, for use in outer shields.

To complete the HV, EHV solution offering, Dow E&T recommends DFDG-6059 BK LLDPE, DHDA-6548 BK MDPE or DGDA-1310 BK HDPE compounds for the cable jacket (sheath) in combination with DOW ENDURANCE DHDA-7708 BK. DOW ENDURANCE DHDA-7708 BK is an additional layer of jacketing to provide for cable integrity testing after production and installation, or during usage.





### Product advantages

DOW ENDURANCE™ HFDB-4201 SC and EHV are super-clean compounds with accompanying super-clean packaging and logistics solutions that help assure the delivery of clean compounds to cable manufacturers. Due to the high stress levels that HV and EHV cables are subjected to, the cleanliness of insulation is crucial to the cable's longevity and performance.

DOW ENDURANCE HFDA-0801 BK and EHV semiconductive compound products offer exceptional smoothness and cleanliness that help provide outstanding electrical and mechanical properties over the specified range of operating and emergency temperatures.

DFDG-6059 LLDPE jacketing compound provides high mechanical strength, excellent puncture and stress-crack resistance, and good UV resistance during transportation, installation and operation of the cable.

DOW ENDURANCE DHDA-7708 BK is a semi-conductive compound that is co-extruded,

in a thin layer, with the jacket compounds. This enables verification of the jacket integrity throughout cable production and transportation, as well as following installation and later periodic checks.

### Capabilities and commitment

Beyond Dow's extensive R&D resources, Dow E&T also utilizes its own industry-dedicated Global Technology Centers where we are continually evaluating, anticipating and responding to industry demands and trends. We are committed to employing the latest research technology and tools to help ensure that our chemistry-enabled products truly perform for every customer along the value chain.

Our intensive testing and validation process exemplifies our commitment to world-class practices that meet or exceed industry standards for quality, and fuel our focused pursuit of new ideas.

In addition, we focus on making certain that every material we formulate meets the specific processing and performance requirements of current and next-generation wire and cable products.

Our solutions offer cable manufacturers and end users a combination of materials that exhibit mechanical strength, flexibility, electrical properties and aging stability. These solutions, that encompass formulation through installation, are made possible because we work together with you to match our technical experience to your specific needs.

## About Dow

Dow (NYSE: Dow) combines the power of science and technology to passionately innovate what is essential to human progress. The company is driving innovations to extract value from the intersection of chemical, physical and biological sciences to help address many of the world's most challenging problems such as the need for clean water, clean energy generation and conservation, and increasing agricultural productivity. Dow's integrated, market-driven, industry-leading portfolio of specialty chemical, advanced materials, agrosociences and plastics businesses delivers a broad range of technology-based products and solutions to customers in approximately 180 countries and in high-growth sectors such as packaging, electronics, water, energy, water, coatings and agriculture. In 2013, Dow had annual sales of approximately \$57 billion and employed approximately 53,000 people worldwide. The company's more than 6,000 products are manufactured at 201 sites in 36 countries across the globe. References to "Dow" or the "company" mean The Dow Chemical Company and its consolidated subsidiaries unless otherwise expressly noted. More information about Dow can be found at [www.dow.com](http://www.dow.com).

### About Dow Electrical & Telecommunications

Dow E&T, a business unit of The Dow Chemical Company ("Dow"), is a leading global provider of products, technology, solutions and knowledge that sets standards for reliability, longevity, efficiency, ease of installation and protection that the power and telecommunications industries can count on in the transmission, distribution and consumption of power, voice and data. Understanding that collaboration is essential to success, Dow E&T works together with cable makers, other industry suppliers, utilities, municipalities, testing institutes and other organizations around the world to help develop solutions and create mutual value that will sustain these industries for years to come. For more information, visit [www.dowhvpower.com](http://www.dowhvpower.com)

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