

Borealis HE4883: the first ADCA-free Insulation for Data Cables up to Category 8



The digital revolution has brought challenges and opportunities to network providers. With global data center IP traffic expected to triple over the next five years, network providers are more pressed than ever to offer reliable, high-quality transmission at higher frequencies and broader bandwidths. Meanwhile, the European Chemical Agency (ECHA) has classified azodicarbonamide (ADCA), a widely used blowing agent for foamed communication cables, as a “Substance of Very High Concern” due to its respiratory sensitizing properties. It has recommended its inclusion on the ECHA Annex XIV list of compounds requiring prior authorization for use.

With the introduction of HE4883, we offer our customers a safe, ADCA-free alternative. This advanced insulation solution, made from high density polyethylene (HDPE), is formulated to enable excellent foaming during the gas injection extrusion process. This allows for high line speeds and optimal electric performance across a broad spectrum of frequencies.

HE4883 fulfills the requirements for category 6 and 7, and is also suitable for category 8. With this innovative material solution, network providers can offer greater volume data transmission services with enhanced reliability and quality.

Key properties of HE4883 include

- ADCA-free
- Fully formulated compound for reliable consistency
- Less scrap due to stable processing
- Longer production runs
- High core line speed
- Fine and homogeneous cell structure
- Improved dissipation factor

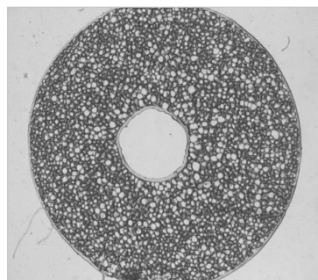
A fully formulated compound for physical foam insulation

HE4883 is a fully formulated compound for physical foam insulation. It has been developed specifically for advanced screened, twisted pair data cables produced using the gas injection foaming process.

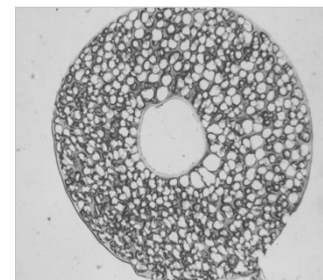


Increased productivity

- HE4883 represents a finely tuned balance between polymer system and specialized nucleating agent, enabling cable makers to reach line speeds of up to 2,000 m/min.
- Greater homogeneity and uniformity of cells delivers increased resilience. This allows for higher twisting speeds and jacketing line speeds without crush damage to the cables.



Example of Borealis HE4883



Example of uneven cell structure

Fine and homogeneous cell structure

HE4883 gas-injected cellular insulation exhibits very low dielectric loss, making it suitable for the highest frequency data cable frequency transmissions and mini-coaxial cables.

Its superior concentricity and homogeneous cell structure are essential for supporting higher frequency transmission characteristics. The compound's homogeneity facilitates uniform cell formation within the foamed insulation, while its fine, homogenous, and closed cell structure ensures better adhesion to the conductor's surface.

Borealis HE4883 characteristics in brief

- Fully formulated compound for reliable consistency
- Less scrap due to stable processing
- Higher line speeds of up to 2,000 m/min
- Longer production runs
- Fine and homogeneous cell structure

Customer quote



Using Borealis' HE4883 in our products will allow the next generation of high-performance data communication cables to use more environmentally sound materials whilst still maintaining the excellent processing capability and electrical performance that we expect today. This material will allow our designers to push the boundaries of electrical performance in our copper cabling systems whilst continuing to reduce our environmental impact.

Kennedy Miller, Technology and Sustainability Manager Brand-Rex Ltd, Scotland, UK

Borealis solutions bring energy all around

Borealis has been a trusted partner to the energy industry for over 60 years, delivering innovative polyolefin solutions that help power our lives. Our portfolio includes high-performance compounds for wire and cables applications ranging from underwater power projects to transmission and distribution networks, communications, and advanced energy storage systems and capacitors.

With operations and joint ventures in the US (Baystar™ and Rockport), South Korea (DYM Solutions) and the UAE (Borouge), our reach extends well beyond Europe. This global presence widens our expertise and extends the impact of our work.

Our purpose is to reinvent essentials for sustainable living. As part of this commitment, we're helping to accelerate electrification and the green energy transition through our proprietary technologies and advanced material solutions. These include technology platform Borlink™, sustainable engineering polymer class Stelora™, solar brand Quentys™, and Borclean™ capacitor film resins.

Meanwhile, our Borcycle™ M, Borcycle™ C and Bornewables™ portfolios are meeting demand for sustainable solutions that don't compromise on quality. Independently certified by ISCC PLUS, these high-performance compounds are the tangible result of our EverMinds™ initiative to drive progress in the transition to a circular economy.

Borclean™, Borcycle™, Borlink™, Bornewables™, EverMinds™, Quentys™ and Stelora™ are trademarks of Borealis AG.

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