



Dow Electrical & Telecommunications

Kabelwerk Eupen AG and Dow AXELERON™ Compounds Meet Exacting Demands for Improved Cellular Communication Quality and Coverage



Case

Based in Eupen, Belgium, Kabelwerk Eupen AG is a leading European cable manufacturer. The Eupen site offers flexibility in all stages of the process, from design through manufacturing to the final product testing.

A leading manufacturer of prime quality coaxial cables since broadband transmission became possible, Kabelwerk Eupen AG has the experience, resources and products to effectively meet the increasingly exacting demands of today's challenging wireless communication markets.

The cable manufacturer's customer base includes leading telecommunications operators in Europe, North America, Africa and Southeast Asia.

Challenge

Kabelwerk Eupen's customers are continuously seeking to improve cellular communication quality and coverage. Critical to this is having tower feeder cables with very low signal loss, and innovation in the cable insulation is seen as essential to meeting these demands.

The key challenges facing Kabelwerk Eupen AG were:

- Supplying radio frequency (RF) cables that reduce signal loss
- A focus on improving the electrical performance of the cables, achieving a significantly lower dissipation factor on some cables and increasing the foaming rate
- Reaching a solution that is aligned with the company's corporate goals of developing, manufacturing and delivering high-quality products that deliver consistent performance

Solution

From the outset, the team from Kabelwerk Eupen AG worked hand in hand with experts from Dow Electrical & Telecommunications (Dow E&T) to discuss the possible solutions to the challenge of enhancing the performance of the cables and meeting the increasingly exacting customer demands.

The cable manufacturer was keen to hear which materials Dow E&T recommended for optimal RF cable insulation performance. After initial positive sampling of Dow AXELERON™ CX 6944 NT Compound (CPD) HDPE resin, Dow E&T recommended that Kabelwerk Eupen AG consider its experimental LDPE component for RF cable insulation. The new resin was sampled to see if it was possible to further improve the electrical performance of the cables, for instance by further reducing the dissipation factor or increasing the foaming rate.

The materials were subjected to a stringent qualification process at Kabelwerk Eupen's site:

- Measurement of the dissipation factor on granules of potential candidate resins
- Manufacture of various cable size RF cable with checks on processability, foaming rate and measurement of the cable dissipation factor

The positive results achieved during the lab testing phase led to cable trial testing. Dow E&T offered Kabelwerk Eupen AG the opportunity to test the commercial grade of AXELERON™ CX 1258 NT CPD, which also achieved good results in both lab testing and cable trial testing phases.

As a result of the successful conclusion to sampling, the compound was qualified for two cable sizes, 7/8" and 1 1/4". The first global commercial sales of AXELERON™ CX 1258 NT CPD were achieved in late 2012.

"Our customers are constantly seeking to improve the quality of cellular communication. Critical to this is delivering tower feeder cables with very low signal loss. Innovation in the cable insulation is critical in achieving better insulation of the signal and allowing lower attenuation," said Dr. Günter Beyer, Head of Department for Chemical-Physical Laboratories at Kabelwerk Eupen AG. "Dow E&T's materials stepped up to the challenge, demonstrating that quality materials are a critical factor towards ensuring consistent cable performance."

Chief benefits of the solution are:

- Improved electrical performance with a lower dissipation factor
- Ease of mixing with rheologically compatible HDPE for manufacturing consistency
- Physical properties that enable construction of higher quality cables with lower signal loss

Project summary

Customer	Kabelwerk Eupen AG
Applications	RF cable insulation
Materials used	AXELERON™ CX 1258 NT CPD
Functional requirements	Consistent cable performance, reduced signal loss
Commercialization	Global commercial sales achieved by October 2012



AXELERON™

North America

U.S. & Canada	1 800 441 4369
	1 989 832 1426
Mexico	+ 1 800 441 4369

Latin America

Argentina	+ 54 11 4319 9000
Brazil	+ 55 11 5188 9000
Columbia	+ 57 1 219 6000
Mexico	+ 52 55 5201 4700

Europe/Middle East

	+ 800 36946367
	+ 31 115 672626
Italy	+ 800 783 825

South Africa

+ 800 99 5078

Asia Pacific

+ 800 7776 7776
+ 603 7965 5392

dow.com

dow.com/electrical
Axeleron.com

Notice: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Dow assumes no obligation or liability for the information in this document. No warranties are given; all implied warranties of merchantability or fitness for a particular purpose are expressly excluded. This document is intended for global use.