

Enabling life's essentials through superior polyethylene pipe materials

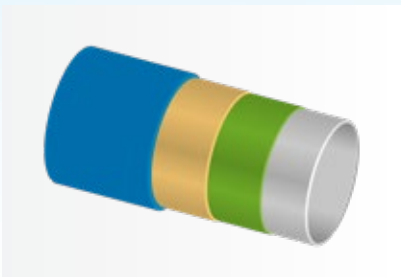


Figure 1: schematic illustration of a 3LPE coating system used for water pipelines, with a fusion bonded epoxy (FBE), maleic anhydride grafted adhesive and a blue top-coat layer

The background

Ensuring clean and safe water

Many of us take for granted the flow of safe and clean water we get when we turn on the tap. Few truly appreciate what goes on behind the scenes to allow us to enjoy reliable and uninterrupted access to potable water. This brief case study illustrates how the use of Borealis Borcoat™ and BorSafe™ materials helps ensure life's essentials, in this instance by contributing to the success of a major water pipeline project.

Steel pipes are commonly used for pipelines because they can best withstand the high pressures required to transport fluids like water, oil and chemicals, but also gases, over long distances. However, steel pipelines are prone to corrosion. External coating systems and cathodic protection are used to ensure pipeline longevity and robustness.

The Challenge

Pipes must ensure best durability

Around the world, three-layer polyethylene-based systems, or 3LPE, are the most commonly used external anti-corrosion coatings (see Figure 1). While the main function of a 3LPE system is to protect steel from its corrosive surroundings, it is also the globally most commonly used coating due to its durability: it offers better scratch, indentation and impact resistance; UV protection. These benefits are especially important given the challenging conditions pipes must endure during transportation, handling, storage (which in some instances may be for many months outdoors, with extreme temperature fluctuations), and installation.

CASE STUDY

The Solution

Borealis Borcoat™ and Borsafe™ grades for UK water pipeline

A major high-pressure water pipeline project carried out in the United Kingdom in 2017 specified steel pipe with a 3LPE coating system, including a blue top coat. Noksel Espana, a subsidiary of Noksel Turkey, supplied over 170 km of coated steel pipes. For over 30 years, Noksel's spiral welded steel pipes have been used in major pipeline infrastructure projects around the world. For this important project, Noksel selected Borealis grades Borcoat™ ME0420 for the maleic anhydride grafted PE-based adhesive; and BorSafe™ ME3444 for the blue top coat layer of the pipes (see Figure 2).

Apart from the excellent business relationship that Noksel and Borealis have cultivated for many years, there were other important reasons for Noksel to select Borealis as partner for this project:

- With its own impressive track record of over 50 years, Borealis has been a global solution provider and reliable partner to the pipe industry, providing dependable service and quality from one end of the pipeline to the other.
- Because Borealis has a dedicated team at the customer's disposal, any problems which may arise during production and execution can be handled quickly and efficiently by experienced Borealis technicians, specialists and sales managers.
- The coating system based on Borcoat ME0420 and BorSafe ME3444 enables pipes to withstand mechanical loads during handling, transportation and installation.
- BorSafe ME3444 offers superior performance when it comes to thermal ageing and UV resistance.
- As a ready-to-use grade, no further pigments must be added by the customer when using BorSafe ME3444.



Figure 2: Pipes, coated by Noksel with a 3LPE coating system based on Borealis BorSafe ME3444, awaiting transport to the UK (photo ©Noksel Espana)

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About Borealis Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With its head office in Vienna, Austria, the company currently has around 6,800 employees and operates in over 120 countries. Borealis generated EUR 8.3 billion in sales revenue and a net profit of EUR 906 million in 2018. Mubadala, through its holding company, owns 64% of the company, with the remaining 36% belonging to Austria-based OMV, an integrated, international oil and gas company. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC).

Borealis and Borouge aim to proactively benefit society by taking on real societal challenges and offering real solutions. Both companies are committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and work to solve the world's water and sanitation challenges through product innovation and their Water for the World programme.

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