



Case Study:
Installation of FireBarrier
135 in the Bjørvika Tunnel

The challenge

The Norwegian Public Roads Administration (NPRA) decided to build the Bjørvika tunnel in central Oslo, in order to reduce the volume of traffic throughout an extensive waterfront area and in the process link two existing tunnels, Festning and Ekerberg.

The Bjørvika tunnel was designed to accommodate 100,000 vehicles daily along a total length of 6km. Following tunnel construction the E18 motorway was re-routed through the new tunnel, leading to better air quality, reduced noise levels and the release of land for residential and commercial development.

Given the waterfront location, along the Oslo fjord, the NPRA chose to build an immersed tunnel. The project demanded the highest standards with regard to public safety, and in particular the installation of a fire protection layer sufficient to protect the concrete structure of the tunnel and prevent its collapse.

Tunnel collapse may result when heat from a fire triggers spalling in concrete and/or the loss of strength in steel reinforcement bars within the concrete structure.

Benefits of FireBarrier 135 for the Bjørvika team's requirements

Recognising the need for top quality fire insulation that could maintain concrete temperatures beneath those that cause spalling, and that would also be amenable to cleaning, variations in temperature, vehicle emission and water leaks, the Bjørvika team set about finding the best material for the job.

Their choice was Morgan's FireBarrier 135, which was already being used in a number of new and upgraded tunnels. FireBarrier 135 proved successful in the very extensive testing that was demanded by NPRA before its use in the Bjørvika tunnel was approved. This success reinforced the previous high performance of FireBarrier 135 in a range of internationally-recognised testing programmes.



The Result

In early 2009, FireBarrier 135 was installed in the Bjørvika tunnel in a single layer over wire mesh. At total of 35,000m² was applied by 60 people, in order to meet challenging deadlines.

Bjørvika tunnel represents one of the most exhaustively investigated projects to involve FireBarrier 135, and the first use of the product in an immersed tunnel.

35,000m²
of FireBarrier
135
were applied

The assessment regime applied to FireBarrier 135 by NPRA comprised tests of fire and alkali resistance, adhesion, carbonisation, dynamic fatigue, frost resistance and ability to withstand high-pressure cleaning.



ABOUT MORGAN ADVANCED MATERIALS



Morgan Advanced Materials is a global engineering company offering world-leading competencies in materials science, specialist manufacturing and applications engineering.

We focus our resources on the delivery of products that help our customers to solve technically challenging Problems, enabling them to address global trends such as energy demand, advances in healthcare and environmental sustainability.

What differentiates us?

- Advanced material science and processing capabilities
- Extensive applications engineering experience
- A strong history of innovation and reinvention
- Consistent and reliable performance
- A truly global footprint
- We find and invest in the best people

For all enquiries, please contact our specialist sales and manufacturing sites:

Europe

Morgan Advanced Materials
Morgan Drive
Stourport-on-Severn
Worcestershire DY13 8DW
United Kingdom

T +44 (0) 1299 872210
F +44 (0) 1299 872218
europesales@morganplc.com

North America

Morgan Advanced Materials
4000 Westchase Boulevard
Suite 170, Raleigh,
NC 27607-3970
USA

T +1 (855) 809 9571
F +1 (706) 622 4424
nasales@morganplc.com

South America

Morgan Advanced Materials
Avenida do Taboão 3265- São
Bernardo do Campo - SP
CEP 09656 000
Brasil

T +55 (11) 4075 0400
F +55 (11) 4075 7547
sasales@morganplc.com

Asia

Morgan Advanced Materials
150 Kampong Ampat
05-06A
KA Centre
Singapore 368324

T +65 6595 0000
F +65 6595 0005
asiasales@morganplc.com

Morgan Advanced Materials plc
Quadrant, 55-57 High Street,
Windsor, Berkshire, SL4 1LP United Kingdom