

## The Øresund Tunnel

The Øresund Tunnel forms part of the fixed link between Zealand in Denmark and Scania in Sweden. The 16km long tunnel, island and bridge link consists of a four lane motorway and a dual track high speed rail line between Kastrup near Copenhagen and Lernacken near Malmö.

The 3.5km long immersed tunnel is constructed from 20 pre-cast concrete elements each weighing 55,000 tonnes which connect the artificial peninsula at Kastrup to the man made island in the Øresund.



In the event of an incident occurring inside the tunnel involving fire or explosion, adequate measures have been taken to protect the 180,000m<sup>2</sup> of concrete from spalling and the steel reinforcement from losing its strength by the application of a passive fire protection coating.

This coating - Fendolite MII is designed to prevent the surface of the concrete from exceeding a temperature of 380°C after two hours of hydrocarbon fire exposure where flame temperatures can reach 1350°C within a few minutes.

The system has been fully tested at TNO in Holland in accordance with the Rijkswaterstaat (RWS) requirements and has been shown to prevent concrete from spalling even after four hours hydrocarbon fire exposure at the Böras test facility in Sweden.

Fendolite MII is a spray applied lightweight coating based on exfoliated vermiculite and Portland cement which is supplied as a factory controlled pre-mix, manufactured by Cafco in the UK and Isolatek in the USA, and under Licence in Taiwan, India, Korea, Australia, Thailand, Singapore, Indonesia, South Africa and Spain.

Fendolite MII has an unrivalled track record spanning 18 years in the construction, petrochemical and tunnel industries throughout the world and was selected by the Client (ØTC) after completing an exhaustive evaluation of available fire protection systems and solutions.

In addition to the protection of the concrete structure, designs were developed to provide adequate protection for the segment and immersion joints within the tunnel and for sealing between compartments within the service tunnel.

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