ADFIL Construction Fibres

APPLICATION LEAFLET

Synthetic Macro Fibre Reinforced Concrete Track Slab

Durus® EasyFinish

Replacing Steel Reinforcement with SMFRC

A concrete track slab is a ballast free alternative to conventional wood or concrete sleeper construction. It has been used for light rail transit in urban areas and in railway tunnels, where low maintenance is very important.

In the past, conventional steel rebar has been used to provide structural capacity and thermal and drying shrinkage control in the concrete. Synthetic macro fibre reinforcement development has now allowed the performance required to enable total replacement of steel reinforcement in this application.

SMFRC is used across to perform 3 functions:

- Across the width of the track slab to spread lateral forces.
- Sufficient bending strength is also provided in order to prevent rail-roll.
- In the longitudinal direction the track slab forms the supporting structure, in place of track ballast.

Advantages of Synthetic Fibre Reinforcement

Delivers significant cost & time savings

Replacing steel bar with synthetic macro fibre reinforcement reduces the cost and difficulty of installing the track slab. Typically there are many small areas making up the track slab, making it very time consuming to cut and fix steel rebar or mesh reinforcement.

Eliminates unwanted electrical conductivity

Steel reinforcement can result in unwanted conductivity from the rail to the ground, potentially leading to corrosion of the steel rails, reducing service life.

By using Durus macro fibres this problem is completely eliminated. They are manufactured from virgin PP which has no electrical conductivity.

Prior to installation of the Durus EasyFinish MFRC Track Slab - Tallinn, Lituania

Track slab - Belgium

Durus EasyFinish macro fibre

ADFIL
Construction Fibres

Tallinn Tramline, Lithuania

Creating a combination of structural performance, ease of installation and high durability was top priority for the 16km-expansion of the tramline in the Tallinn city centre.

By using Durus EasyFinish macro synthetic fibres as primary reinforcement all above requirements were met.

The concrete track slab has drainage holes which enable grass to be grown between and along the rails. This creates a green belt around the city of Tallinn.

Midland Metro, UK

Similar construction considerations were needed for the Midland Metro in the UK, as for the Tallinn Tramline project. The Adfil team provided full technical support to the Midland Metro Alliance, the project Consultant Engineers, Tony Gee & Partners and the Concrete supplier. This ensured delivery of the project went smoothly, with further phases of the Metro expansion planned for the next decade.

Further City Metro projects are scheduled across the UK with Durus EasyFinish providing a proven reinforcement specification for the future in this application.

Tallinn Tramline project during installation of Durus EasyFinish fibre reinforced concrete.

Midland Metro project, UK, during installation of Durus EasyFinish fibre reinforced concrete

Tallinn Tramline project. When completed, the tram route will be planted with grass to provide a 'green' route around the city.

Durus EasyFinish MFRC can be poured directly into place without the need for complicated cutting and fixing of conventional steel mesh.

Belgium T +32 52 457 413
India T +91 8527625678
United Kingdom T +44 1482 863777

www.adfil.com / info@adfil.com