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TUNNEL WALLS

TECHNICAL PROBLEMS

Internal tunnel walls are subject to a variety of problems concerning their water-resistance, their resistance to corrosive gases emitted by vehicles and their cleanliness. Any protection applied to these walls must provide an effective solution to all these problems and be easy to apply and clean, in accordance with the specific conditions at play within these tunnels.

TRADITIONAL SOLUTION

A paint-type solution (epoxy-based or other):

This technique can provide a satisfactory response to the problem of cleaning and, if necessary, protecting the concrete if it is applied in several consecutive layers - but it cannot provide an effective seal. Additionally, applying the various coats can be a long and often complicated process. The time required to dry each coat is also a hindrance, as during this period they will be sullied by dust and gaseous emissions.

Tiling-type solution:

This is satisfactory in terms of cleaning and colours available, but it is slow and difficult to install. It does not provide an effective seal.

SOUPLETHANE TECHNIQUE

SOUPLETHANE is applied directly to the concrete in a single, unbroken layer - whether on the vertical sides or the ceiling. It offers the following advantages:

- It provides a liner-type seal to the concrete, even when subjected to counter-pressure from water (tested with a column of water up to 100 m).

- It is anti-static and anti-dust, so it tends not to get dirty or attract dust. It's easy to clean with a hose, and the coating offers complete resistance to the mechanical constraints caused by the cleaning process (it has been tested under 300 bars of water pressure).

Anticorrosion: it is highly resistant to chemicals (pH 1 to 13). It provides perfect protection to the concrete, and as corrosive gases can't penetrate the coating, SOUPLETHANE makes an excellent vapour barrier too.

- It can be applied extremely quickly. Thanks to the rapid polymerisation, the tunnel can be opened quickly and there is less risk of it being sullied by atmospheric dust while it's setting. By applying sufficient heat to the components to which it is being applied, SOUPLETHANE will become dust resistant in as little as 10 minutes.



APPLICATION

• prepare the substrate:

- Lightly sandblast the concrete
- Degas, if necessary
- apply SOUPLETHANE

- First, impregnate the concrete with a hardening concrete base primer. This will provide an initial barrier to water spreading through counter-pressure by the concrete.

• Apply SOUPLETHANE in a single coat, for whichever thickness is required.

The recommended thickness varies according to the desired function:

• If a seal against counter-pressure is required, apply a thickness of 3 mm (this will bridge 2 to 3 mm wide cracks in the concrete).

• If anti-corrosion and ease of cleaning is required, apply a thickness of 1 mm (it will also resist counter-pressure, but will only bridge small cracks).



TESTS AND CERTIFICATIONS

- LCPC: 2 mm crack bridging in concrete
- CEBTP/LYON: bridging at 10°C for 2 mm cracks
- STER 1 qualification.
- Counter-pressure resistance: 10 bars (CEBTP).

Waterproofing