Motorways and highway structures

The pressure to provide safer, less congested travel for motorists poses ever more engineering challenges. The durability of both new and existing highways structures must be assured by using materials capable of achieving the required design life.

Reinforced concrete structures are common on motorways and highways but their durability is constantly threatened by exposure to chloride attack from de-icing salts, as well as freeze-thaw attack, water ingress and carbonation. Engineers need to use the most advanced materials available to reinstate the integrity and durability of these structures, whilst also meeting the current and future demands of our ever-evolving highway infrastructure.

Assuring structural integrity

Intercrete® has spent over 30 years developing a comprehensive suite of materials that are regularly specified by Highways Agencies and local authorities for reinstatement and protection projects. Incorporating the latest cementitious and polymer technology, **Intercrete** products are proven to perform in even the most demanding situations and offer rapid, straightforward application. They are also CE Marked in accordance with BS EN 1504 and meet the high performance standards required by Highways Agency Specification Clause 1770.

Intercrete offers practical, economic solutions which meet the needs of both existing motorway structures and new construction developments. This includes the latest SMART motorway schemes and other widening projects which are being introduced to manage increasing levels of traffic and congestion. Such schemes may involve alterations to existing structures as well as new construction (e.g. gantries) which may require low cover issues to be addressed or additional chloride protection in order to reinstate their durability.

Minimising disruption

With environmentally friendly, water-based formulations, **Intercrete's** range of engineered products enable repair and protection projects to be carried out in a sustainable, long-term manner. What's more, they are quick and easy to apply direct to concrete without the need for a primer, ensuring that minimal disruption is caused to motorway users.

One-stop solution

Intercrete provides a comprehensive range of engineering quality mortars and high performance cementitious and anti-carbonation coatings. They are perfectly suited to reinstating and protecting a wide range of motorway and highway structures, including:

- Gantries and vehicle restraint barriers
- Overbridge decks and concrete elements
- Concrete hard shoulder areas
- Transit and freight rail bridges
- Drainage kerbs and channels
- Culverts and retaining walls
- Foot bridges and cycle bridges

Intercrete repair and protection solutions are ideal for use on SMART motorway construction

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Keeping our motorway and highway network moving

Intercrete's innovative solutions help to maintain a safe, efficient and reliable road network, which in turn can help cut both costs and congestion.

SMART motorways and new construction

Problem: SMART motorway upgrades and widening schemes can reveal areas of low cover which require remedial work. If untreated, this can cause chloride ingress which can severely compromise the intended design life.

Intercrete 4841 effectively reinstates cover and protects from chlorides

Solution: The **Intercrete** range of cementitious coatings and technical mortars is ideally suited to reinstating the durability of reinforced concrete in order to ensure that the design life is achieved. **Intercrete** products are totally impermeable to water and have excellent resistance to both chloride and carbon dioxide ingress. A 2mm coating of **Intercrete 4841** provides the equivalent of 100mm of good quality concrete cover.

Repairs to decks, kerbs and channels

Problem: Structural repairs and refurbishment are often required on trafficked concrete decks, as well as drainage kerbs and channels. A reliable, fast-setting material is required in order to minimise disruption to road users.

Intercrete 4802 sets in 10 minutes, achieving a final strength of over 60MPa

Solution: Trafficked areas can be quickly repaired and strengthened using **Intercrete 4802**. This rapid hardening, fibre reinforced, polymer modified repair mortar is based on Portland cement technology and achieves a compressive strength of 14MPa in just 1 hour at 20˚C. It can also be used to reinstate concrete prior to surface dressing with asphalt or a waterproofing membrane, allowing the road to be rapidly returned to service.

Concrete repair and protection

Problem: Reinforced concrete elements on bridges and other highway structures are exposed to an aggressive environment whereby the passivating layer around the steel is broken down leading to corrosion and spalling.

Intercrete 4891 has an anticipated lifespan of at least 15 years

Solution: **Intercrete 4801** is a structural repair mortar, CE Marked to EN1504-3 and compliant with the requirements of Highways Agency Specification BD27/86. Its physical characteristics are similar to bridge quality concrete and it can be built up to 80mm even on soffits. **Intercrete 4891** is a high performance coating that provides a decorative finish with excellent protection from carbonation and ingress of chlorides from salt-spray.

Protection from de-icing salts

Problem: Bridges and other reinforced structures that are exposed to de-icing salts can be severely damaged by chloride attack. This can cause extensive corrosion, loss of steel section and large areas of spalled concrete.

Intercrete products meet Highways Agency Specification Clause 1770

Solution: **Intercrete 4841** offers exceptional protection from chloride ion ingress and is ideal for use on both new and existing structures. Independent tests have confirmed that it will provide an effective barrier to chlorides for at least 30 years. **Intercrete 4841** also provides outstanding resistance to freeze-thaw cycling, and its innovative formulation allows the product to behave in a similar manner to the parent concrete.

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