CASE STUDY

When Ireland’s leading public works contractor needed to extend a train line in just 36 hours, they approached CEMEX for a building solution. CEMEX responded with Promptis concrete innovation.

The customer needed to complete a ready ambitious project: the extension of a train track line required a concrete that could be cast in 16 hours, and be fully hardened, ready to open for traffic the following morning at 7am. Prior to the delivery date, tests were carried out to optimise the mix design and ensure that the target performance could be achieved in the expected cold weather conditions (as low as 5°C). The team had only one working day and the weekend to prepare the ready mix plant for the job.

CEMEX came through and delivered results six hours after the last casting, the train lines were handed over to the customer, ready to resume operation immediately.

“Without your team’s dedication and support, we would not have achieved the result.”

Darren Cleaver, Contracts Manager for BAM Contractors.

Why use Promptis?

• Concrete poured in winter achieves the required strength faster to avoid frost damage.

• Reduced road and rail line closure.

• Slip form casting times are faster.

• Design strength achieved in less than 7 days.

• Concrete can be fully loaded after 24hrs curing.

• Much lower risk of thermal cracking as strengths of 40 N/mm² are typically more slowly (dependant on proper curing).

• Concrete is easy to compact and finish.

• Rapid construction programmes are easily achieved.

• The stiffening process & strength development begin as soon as material is finally placed.

• Concrete is easy to compact and finish.

• Fast demoulding of columns, walls, beams, slabs, panels…

• New construction and renovation of bridges, farm buildings…

• Precast manufacture

• Other applications..

Advantages

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In an ever more demanding and extremely competitive environment, with tight deadlines and even tighter margins, speed and efficiency which save time are critical. Promptis, from CEMEX, is a new rapid hardening concrete solution that can help save valuable hours.

Promptis has similar characteristics to conventional concrete but it reaches accelerated strength after just four hours and still maintains initial flow properties and workability for up to 120 minutes. Formwork can be stripped after only six hours, saving time and money.

It is an ideal solution for projects such as road and rail renovation, where the use of Promptis could help minimise traffic restrictions.

The properties of Promptis are the result of a carefully selected combination of specialist admixtures combined with expert mix design.

Promptis has been launched globally rather than just nationally, as it produces consistent results using a broad variety of cements, available in different countries. In addition there is global market demand, with Promptis suitable for use in both readymix and precast applications.

**ADVANTAGES OF PROMPTIS**

- Formwork can be stripped after 4 hours
- Rapid construction programmes are easily achieved
- Ultimate design strengths are normally achieved in less than 7 days
- Faster slip form casting times
- The concrete is easy to compact and finish
- Concrete strengths of up to 40N/mm² are achievable at just 24 hours
- Concrete poured in winter achieves the required strengths faster to avoid frost damage
- Principles can be designed to achieve a range of end performance characteristics
- Principles is suitable for pumping

**TECHNICAL DATA**

**Characteristics**

- Strengths up to 40N/mm²
- Complies with BS EN 206-1 and BS 8500-2
- Principles is available in a range of compressive strength classes
- Principles are designed to meet a wide range of exposure classes
- Principles can be designed to achieve full, 50, 30, less than 30 Class
- Consistency is maintained for up to 120 minutes

**Performance**

- High early strengths allowing formwork removal 6hrs after delivery
- Rapid strength development allowing fast traffic to slabs within 6 hours and vehicle traffic after 24 hours
- Workability maintained for >90 minutes

**Benefits**

- Fast formwork removal leading to increased productivity
- Cost savings
  - Reduced labour cost
  - Reduced rental cost for construction equipment
- Safe formwork removal
- A unique concrete solution that existing products cannot provide

**Applications**

- Principles is a product for a broad range of specific applications:
  - Fast demolding
    - in buildings: columns, walls, beams, slabs, panels
    - in civil engineering: high walls, tunnels, roads
    - in schools, hospitals, airports, parking lots
  - Easy handling
    - in precast facilities: beams, panels, specific elements
  - Renovation and repair
    - in buildings: columns, walls, beams, slabs, panels, specific elements

**Comparison of compressive strength in the short term**

**Promptis**

**Promptis XR**

**Control**