Concrete Technology in Focus
4x4™ Concrete
Comparison to Rapid-Setting Cement Concrete

Application:
Rapid Pavement Replacement and Repair
When the need arises to rapidly replace or repair deteriorated concrete pavement, high-early strength concrete made with rapid-setting cements have traditionally been used. However, these mixtures are plagued with placement difficulties and often exhibit post-placement problems such as cracking and the need for grinding. The 4x4 Concrete system uses patented technology to overcome the typical problems associated with rapid-setting cements.

The 4x4 Concrete System in Practice
To help agencies overcome these issues and meet the demands for fast-track pavement replacement and repairs, BASF has developed the 4x4 Concrete system, a patented, and economical method for achieving high-early strength. The 4x4 Concrete system is versatile, easy-to-place, achieves exceptional early strength, and is approved for use by a growing number DOT agencies.

The benefit of the 4x4 Concrete system is clearly seen in the minimal disruption to traffic. In addition to reducing or eliminating commuter impatience and reducing the economic impact of lane closures, the minimal disruption to traffic also increases safety on highways. From a contractor’s perspective, the 4x4 Concrete system is easy to work with as noted by the following comments taken from customers who have used the 4x4 Concrete system:

• “The 4x4 Concrete was very easy to place and finish.”
• “These were the smoothest slabs done to date.”
• “The mix was very workable and there was no cracking.”
• “We finally have our arms around a portland mix, out of a ready-mix truck, for fast-track applications.”

Because the 4x4 Concrete system is made with locally available cements and aggregates, it can be developed by local concrete producers to meet the specific needs of transportation agencies and contractors. The secret to the development of very high early strength lies in the unique combination of BASF’s Master Builders Solutions brand MasterGlenium®, MasterSet® DELVO and MasterSet® specialty admixtures.

In applications where corrosion control is needed, the 4x4 Concrete system can also be produced using MasterLife® CI 30 corrosion-inhibiting admixture to extend the service life of the structure or pavement.
4x4™ Concrete

4x4 Concrete System

**Advantages**
- Controlled hydration/setting
- Rapid strength gain
- High ultimate strength
- Slump control
- User friendly/workable
- Minimal vibration necessary to consolidate
- Standard ready mix truck delivery
- Less expensive/economical
- Predict strength using maturity methods
- No post-placement grinding required
- Uses local cements
- No penalties by avoiding disruption of peak-hour traffic

**Disadvantages**
- Cannot be used in a mobile mixer

Rapid Setting Concrete

**Advantages**
- Fast setting
- Rapid strength gain
- High ultimate strength
- Can be used in a mobile mixer

**Disadvantages**
- Non-user friendly
- Erratic workability/setting time
- Expensive
- Difficult to finish
- Risk set up in delivery truck
- Truck add-on expenses for chipping and cleaning
- Cracking experienced
- Post-placement grinding may be required

The table above shows the similarities and differences between the 4x4 Concrete system and conventional high-early strength concrete made with rapid-setting cement.

More Information
The Master Builders Solutions brand brings all of BASF’s expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring solutions.

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*Effective January 1, 2014, the names of BASF’s Master Builders Solutions brand products have changed: Glenium became MasterGlenium Delvo became MasterSet DELVO Pozzolith became MasterSet Rheocrete CNI became MasterLife CI 30

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