

JCL's strive for High Performance

Build With Confidence

JCL



High Performance Concrete

What is High Performance Concrete?

High Performance Concrete is concrete with superior properties in terms of strength, workability and durability.

JCL ULTRACRETE 80 and JCL ULTRACRETE 100 are fully self-compacting, high-strength concrete with designed compressive strength of 80 MPa and 100 MPa respectively.



What is JCL ULTRACRETE 80/100?

When designing these products we had the following in mind:

- » Use ingredients that are readily available at any concrete batching plants
- » Fully self-compacting
- » Workability retention > 2 hours
- » Achieve good safety-margin for strength
- » Non-sensitive mix-design

Why using High Strength Concrete?

The following advantages can be achieved when using high strength/ high performance concrete:

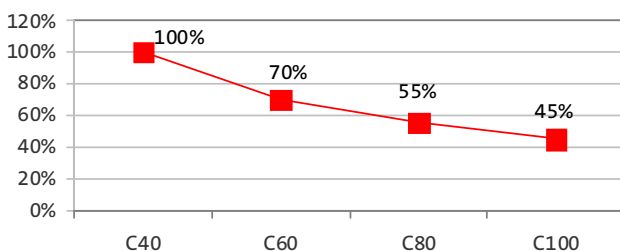
What do Engineers like?

- » Less concrete used and therefore less resources and reduced dead weight for the structure
- » Use of less reinforcement
- » Less deflection
- » Higher durability
- » Ease of concrete placement

What do Architects like?

- » Slimmer structures can be designed
- » Reduced column-size and therefore more available space
- » Reduce Concrete Usage Index (CUI) and gain BCA Green Marks

Reduction Rate in Area of cross section vs Concrete Grade



Source: BCA Pillars on Safe Built Environment

Technical Characteristics

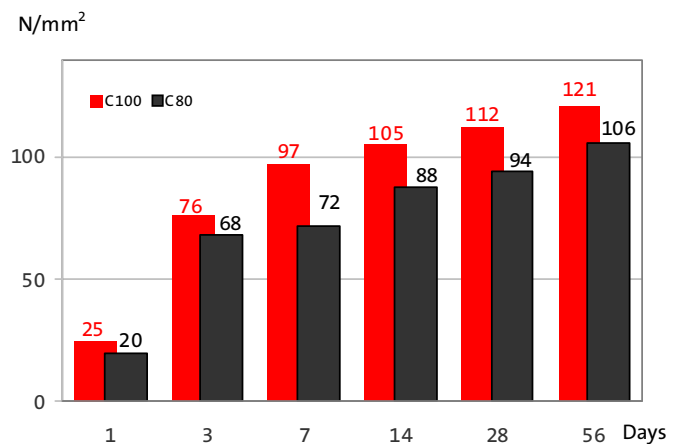
Mix Design

JCL ULTRACRETE 80/100 contain the following ingredients:

- » Natural Sand
- » Crushed Aggregates 20mm
- » OPC
- » GGBFS
- » Silica Fume
- » Water (W/C 0.22 to 0.24)
- » High Performance Concrete Admixture

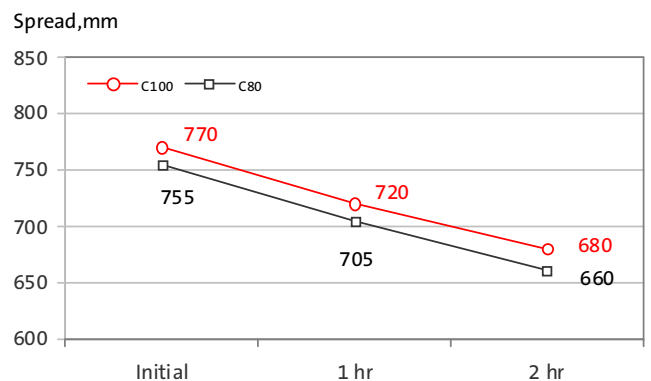
Compressive Strength

Typical Compressive Strength of JCL ULTRACRETE 80 and 100



Workability

Typical Workability of JCL ULTRACRETE 80 and 100.



Shrinkage Behaviour

Measurements at the National University of Singapore (NUS) have demonstrated that JCL ULTRACRETE 80 / 100 exhibit very low autogenous shrinkage values (<350 microstrains). This distinctively differentiates from the conventional high strength mixes.

Temperature Development

Various measurements both in the lab and in mass-pour plant trials have shown temperature developments, peak-temperature and temperature differentials well within acceptable levels.

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