

Uniclass L6129	EPIC F122	Aug 09
CI/SfB	Eq2	

## Hanson Rapid Hardening Portland Cement technical data sheet

Hanson Rapid Hardening Portland Cement (RHPC) is manufactured to comply with the requirements of BS EN 197-1 CEM I Portland cement strength class 52,5.

Hanson RHPC is chemically similar to CEM I Portland cement (Cem I PC) but is more finely ground to achieve higher early strengths.

### Applications

RHPC is suitable for use in concrete, mortars, or grouts in a wide variety of applications which call for the benefit of higher early strengths.

### Quality

RHPC is produced using carefully selected raw materials. Strict quality control throughout each stage of the manufacturing process ensures that a consistent final product is achieved.

Each RHPC is licensed under the European Union system of conformity evaluation and carries the CE conformity mark which provides independent third party certification of product conformity. It confirms that in addition to applying a system of factory production control based on BS EN ISO 9001, independent sampling and testing of the cement has confirmed its compliance with all of the requirements of BS EN 197-1 (see Quality Assurance).

For further advice please contact Hanson Cement's Technical Helpline on 0845 722 7853. Reports of tests providing data on fineness, setting times, soundness, chemical composition including alkali levels and compressive strengths of mortar prisms are available on a weekly basis.

### Strength

RHPC achieves higher earlier strengths than CEM I PC because it is more finely ground.

Hanson RHPC is chemically similar to CEM I PC and as such concrete mixes should be designed with this in mind. In particular, optimum ultimate strength of concrete using Hanson RHPC will depend, like CEM I PC, on careful attention to the water/cement ratio, consistent with ensuring satisfactory placing and compaction.

Generally however, the use of Hanson RHPC affords a significant early strength advantage over CEM I PC of around 30 per cent in the first 24 hours after casting, reducing to some 10 per cent at 28 days. The durability, ultimate strength, Young's modulus, creep and shrinkage associated with concrete made from Hanson RHPC are similar to those of concrete made from CEM I PC.

RHPC helps to increase concrete production in the factory environment since forms can be struck and the units moved and put into use more quickly than with CEM I PC.

### Concrete mix design

The general principles of concrete mix design using Hanson RHPC are similar to those using CEM I PC. However, some modifications to mix design may be helpful to achieve the full benefit of its early strength properties.

The chemical resistance of products made from Hanson RHPC is similar to those made from CEM I PC. Therefore the same general requirements to achieve durability should be applied, i.e. cement content, water/cement ratio, compaction and curing.

### Curing Methods

The term curing refers to methods to prevent loss of moisture from exposed surfaces of concrete in the first 7 days after casting, the following are the most common methods.

- Covering with impermeable sheeting insuring that the edges are held down.
- Covering with wet sacking but this must be kept wet by spraying with clean water
- Ponding with clean water
- Spaying with a proprietary curing membrane preferably pigmented to ensure full coverage

### Admixtures and extenders

Admixtures such as air-entraining agents and workability aids, extenders such as ground granulated blastfurnace slag and Hanson BS EN 450 Fly Ash, are compatible with Hanson RHPC. It is recommended that trial mixes are carried out to determine optimum proportion.

Please note: Reference to a Technical Standard number in this leaflet is deemed to include the latest published edition and/or any published amendments issued after the standard's publication, unless a date of issue is quoted in which case reference is to the provisions stated in that edition.

L006(Cd)/08/09/pdf

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