

## Product Data Sheet

## HIGH PERFORMANCE CEMENT

### Description

**Cempak High Performance Cement (HP Cement)** is a cementitious blend containing Portland Cement that may be used in various general applications for mortar, concrete and render. **HP Cement** is designed to have a 28 day strength in excess of 32.5MPa. **HP Cement** contains air entraining and plasticising additives that improve the workability and durability. This modified blend results in a more workable fresh product that eases placement and finish quality and modifies the physical structure of the placed product, both of these factors improve the durability of the hardened material.

### Uses

**HP Cement** is suitable for the following applications:

- General Concreting.
- Cement Rendering.
- Paths and Drives.
- Paving and Garden Walls.
- Bricklaying Mortars.

### Special Properties

The main benefits of using **HP Cement**

- Superior durability of the finished product.
- Enhanced resistance to freeze/thaw attack.
- Superior workability & 'feel' of the fresh product to aid workmanship.
- Reduced water demand (improved strength & durability).
- Tighter pore structure which improves both aesthetics and finished job durability.
- Enhanced resistance to naturally occurring ground borne chemicals.

### General Guidelines

#### General Concreting

The sand should be clean sharp concreting sand. The stone should be clean graded 20mm natural or crushed gravel. Alternatively, all in aggregate (ballast) with 35 – 40% clean, sharp sand blended with 20mm aggregate can be used.

The end use of cement will determine the choice of sand (fine aggregate) and stone (coarse aggregate).

The table below shows typical general purpose mixes for most work with the exception of foundation work or outdoor paving:

	Proportions by volume
<b>High Performance Cement</b>	1
<b>Sand</b>	2
<b>20mm aggregate</b>	3

Premature drying of concrete must be avoided and moisture must be retained to ensure strength development. For cements such as **Cempak High Performance Cement** curing it is particularly important when compared to CEM I products as strength development takes place at a slower rate.

Concrete should only be mixed and placed at an ambient temperature of +4°C and rising.

#### Mortar

**HP Cement** can be used to produce standard sand and cement mortar or can be blended with hydrated lime and admixtures to produce the required mortar. Hydrated Lime (to BS EN 459-1) can be added to improve workability, water retention, adhesion and early strength development. Mortar plasticizers should not be added as **HP Cement** already contains an air entrainer. The table below shows typical volumetric mix designs.

	<b>HP Cement: Sand</b>	<b>HP Cement: Lime:Sand</b>	<b>Mortar Class</b>
<b>Class 3</b>	1:4	1:1:4	M4
<b>Class 2</b>	1:3	1: ½ :4	M6

Mortar should only be mixed and used at an ambient temperature of +4°C and rising. Mortar needs moisture to develop its full strength and premature drying must be avoided. Under normal conditions and at temperature above 10°C the mortar should be cured under damp conditions for 1 to 3 days. This can be achieved with wet hessian, a plastic sheet or a curing membrane. Below 10°C the curing time should be doubled. Fresh mortar must be protected against strong sun, wind and frost.

#### Rendering

When using **HP Cement** for rendering applications it is important that the first coat is stronger and thicker than the second coat to avoid shrinkage and debonding. The substrate should be clean and free of loose material. The table below gives typical volumetric mix proportions for renders.

	<b>HP Cement:Sand</b>
<b>First Coat (strong backgrounds)</b>	1:3
<b>First Coat (moderate backgrounds)</b>	1: 4-5
<b>Second Coat (strong backgrounds)</b>	

The Render should be used and protected as described in the mortar section above.

## Packaging and Storage

HP Cement is supplied pre-packed in nominal 5kg and 20kg bags which should be stored under cover and clear of the ground. Storage conditions should be dry. Do not stack more than two pallets high; protect from moisture and temperatures below 5°C. In unopened packaging, the shelf life is 12 months (from the date shown on the bag), subject to correct storage conditions.

## Quality Control

All Tarmac Building Products are factory blended, tested and packaged to quality control procedure in accordance with BS EN ISO 9001.

## Clean up and Spillages

Dry powders should be swept up and disposed of in accordance with the Local Authority.

## HEALTH AND SAFETY

Health and safety advice, which must be followed, can be found on the Material Safety Data Sheet. Users are advised to wear face mask, goggles, gloves and overalls when handling, mixing and applying cementitious products.

Contains Portland Cement. Contains Chromium (VI), which may produce an allergic reaction. Clothing contaminated by wet cement should be removed immediately and washed before reuse. R38 - Irritating to skin. R41 - Risk to serious damage to eyes. S26 - In case of contact with eyes, rinse immediately with water and seek medical advice. S37/39 - Wear suitable gloves and eye/face protection. S2 - Keep out of reach of children.

## Information, Prices & Ordering

For technical information, pricing and to place orders please contact us as follows:

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Warning: The advice shown on this sheet is given as a guide to good practice but Tarmac Building Products can accept no responsibility for any loss, damage or injury howsoever caused in following it.

