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Spring 2008

Blue Circle Mastercrete Original (CEM I 32,5R)

An enhanced Portland cement. It has the following benefits compared with ordinary Portland cement:

- enhanced resistance to freeze/thaw attack.
- lower water demand.
- a more cohesive mix.
- less tendency for water to segregate and bleed.



Photograph courtesy of the Concrete Society

BLUE CIRCLE MASTERCRETE ORIGINAL

Blue Circle Mastercrete Original is available in two formulations (CEM I and CEM II), both formulations have the same performance specification. Blue Circle Mastercrete Original (CEM I) is an enhanced Portland cement which complies with the requirements of BS EN 197-1 CEM I 32,5R.

Blue Circle Mastercrete Original is a quality assured cement with independent third party certification and carries a CE Mark.

Applications

Blue Circle Mastercrete Original is for use in concretes, mortars, renders and screeds.

For specified concrete refer to BS 8500: *Concrete – Complementary British Standard to BS EN 206-1*, which provides guidance for different types and classes of cement.

Reference should also be made to the following documents: BS 5628: *Part 3*:

Use of Masonry. BS EN 13914-1: Design, preparation and application of external rendering and internal plastering.

Blue Circle Sulfacrete should be used where increased resistance to sulfates is required.

Properties

- Consistent strength meeting all the conformity criteria in BS EN 197-1.
- Contains cement quality improver to give the following benefits compared with ordinary Portland cement:
 - lower water demand.
 - more cohesive mix.
 - less tendency for water to segregate and bleed.
 - enhanced resistance of hardened concrete or mortar to freeze/thaw attack.
- Blue Circle Mastercrete Original entrains a controlled quantity of air and the addition of admixture of the

air-entraining type is unnecessary and not recommended for concrete.

In mortar and rendering, the addition of proprietary air-entraining mortar plasticiser is either unnecessary or the manufacturer's recommended dosage significantly reduced dependant upon the sand used.

Other proprietary admixtures of the non air-entraining type and pigments are compatible with Blue Circle Mastercrete Original. Trial mixes are recommended to determine optimum mix proportions.

Availability

Blue Circle Mastercrete Original is supplied in 25 kg bags throughout the United Kingdom.

Storage

Blue Circle Mastercrete Original is a cement based material and should be handled and stored with care. This product may be stored, unopened in either indoor or outdoor conditions. Information on the maximum storage period can be found on the bag.

Conditions of Use

- Blue Circle Mastercrete Original may be used in the range of traditional nominal mixes as for traditional Portland cement.
- To achieve optimum performance from Blue Circle Mastercrete Original in concrete or other products, it is essential that it is correctly specified and used.
- Recommended mixes are given in the Blue Circle Builders' Guide, available from the contacts below.
- As with other cements in building work, there is no substitute for good practice and workmanship. It is essential to use the correct materials, proportion and mix the materials properly, add the correct amount of water, compact, cure and protect as appropriate.
- Normal hot and cold weather practice should also be followed.
- The final finish quality of this material will depend upon the operative having the required skills and a familiarity with the material and its application methods.
- Lafarge Cement UK cannot be held responsible where workmanship has not been carried out in accordance with good practice.
- Manual handling should comply with The Manual Handling Operations Regulations 1992.
- Blue Circle CEM I is manufactured from natural products, and slight shade variations may occur. Blue Circle Mastercrete Original CEM I will also have shade variations from differing manufacturing centres.

Typical properties

Surface area	(m ² /kg)	280 to 390
Setting time – initial	(minutes)	80 to 200
EN196-1 Mortar – compressive strength		
2 day	(N/mm ²)	16 to 26
7 day	(N/mm ²)	27 to 37
28 day	(N/mm ²)	37 to 47
Apparent particle density	(kg/m ³)	3080 to 3180
Bulk density	(kg/m ³)	
Aerated		1000 to 1300
Settled		1300 to 1450
Mortar air content	%	7 to 12
Colour	L value	55 to 70
Sulfate	SO ₃ (%)	2.5 to 3.5
Chloride	Cl (%)	Less than 0.1
Alkali	Eq Na ₂ O (%)	0.4 to 1.0

Blue Circle Mastercrete Original is predominantly compounds of calcium silicate and calcium aluminate with a small proportion of gypsum. It is produced by burning or sintering, at a temperature in excess of 1400°C, a finely ground mixture of raw materials which contain predominantly calcium carbonate, aluminium oxide, silica and iron oxide. The cooled clinker formed is ground under controlled conditions with the addition of typically 5% gypsum.

Technical Support

Further information or specification advice on Mastercrete Original and the full range of Blue Circle cements can be obtained from the contacts listed.

Health and Safety

Contact between cement powder and body fluids (eg sweat and eye fluids) may cause irritation, dermatitis or burns. Cement is classified as an irritant under the Chemicals (Hazard Information and Packaging) Regulations.

For further information, including control of soluble hexavalent chromium, refer to the Blue Circle Health and Safety Information Sheet for Portland cement products.

Note: Both BS 8500 and BRE Special Digest 1 currently restrict the use of concrete containing Portland limestone cement to Design Sulfate Class DS-1 exposure conditions.

For further information

Technical helpline

Tel: 0845 812 6232

E-mail: info@lafargecement.co.uk

Customer services

Tel: 0845 812 6300 Fax: 0845 812 6250

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