Cem 1 ORDINARY PORTLAND CEMENT

Technical Data Sheet

شـــــركـــة إسمنت الخليج
Al Khalij Cement Company

Cem 1 Ordinary Portland Cement (OPC) is manufactured locally to comply with the requirements of BS EN 197-1: 2000 type CEM I Portland cement strength class 42,5R. It is recommended as general purpose cement for use in concretes, mortars, renders, screed and grouts.

Applications

Portland cement is the most commonly used cement for a wide range of applications. These applications cover dry-lean mixes through general purpose ready-mix, to high strength pre-cast and pre-stressed concretes.

AKCC's OPC is suitable for use with a wide range of additives and admixtures to extend the properties and uses of concretes. Ordinary Portland cement is recommended to give improved durability. AKCC's OPC may be used in a wide range of mortars. It is manufactured to comply with BS EN 197-1.

AKCC's OPC is recommended to meet the following requirements:

- To produce high early strength in a wide variety of concretes, mortars and grouts.
- To facilitate the early demoulding, handling and use of all types of precast concrete products.
- Reduce formwork striking times.
- To help maintain normal concrete production during cold weather.

Quality

AKCC's Portland Cement 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. It confirms that in addition to applying a system of factory production, control independent sampling and testing of the cement has confirmed conformity with all the requirements of BS EN 197-1

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

Optimum performance in terms of strength and durability is achieved in concrete when the water/cement ratio is kept as low as possible, consistent with ensuring satisfactory placing and thorough compaction.

Other factors affecting strength include conditions of curing as well as the individual properties of the constituent materials and their proportions in the mix.

The potential strength of any Portland cement based product will best develop under conditions where loss of mixing water is minimized during initial hardening. Appropriate curing for optimum performance is essential as well as preventing moisture loss to the surrounding materials. The rate of strength development will depend on ambient conditions and the initial temperature of the mix. As a general rule, concrete should be placed within the range of 10°C to 30°C. In hot weather, freshly poured concrete should be protected against risk of loss of water by evaporation; cracking caused by thermal stresses and reduced ultimate strength.

Concrete mix design

Concrete mix design needs to be varied to suit individual circumstances. It is strongly recommended that trial mixes are carried out prior to commencement of work to ensure that the mix design and material combinations meet the requirements of the specification and method of use.

Please refer to current standards and recommendations for the manufacture of concretes renders, mortars and screeds

For further information please contact:
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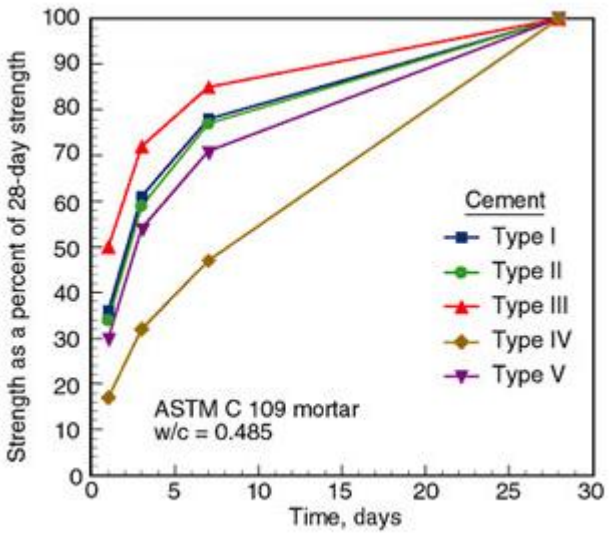
OPC in mortars

Cem 1 OPC is suitable for use in a wide variety of mortars for floor screeds, jointing of brick and blockwork and renders for internal and external applications. Performance of mortars will depend on the properties of the sand, mix design and site practice.



Admixtures and additions

Admixtures such as air entraining agents and workability aids, extenders such as ground granulated blast furnace slag, Silica Fume and Fly Ash are compatible with AKCC's OPC.
It is recommended that trial mixes are carried out to determine optimum proportion.

Availability

AKCC's OPC is available in bulk tankers as well as in bags (50kg) throughout the state of Qatar.

Major Mineral Constituents in Portland Cement

Compound	Abbreviation	Chemical Formula	Typical Concentration %
Tricalcium Silicate	C_3S	$3CaO*SiO_2$	55 – 65
Dicalcium Silicate	C_2S	$2CaO*SiO_2$	10 – 20
Tricalcium Aluminate	C_3A	$3CaO*Al_2O_3$	5 – 10
Tetracalcium Alumino-ferrite	C_4AF	$4CaO*Al_2O_3*Fe_2O_3$	8 - 12

Technical Support

For further advice please contact Technical Support at

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