

LH-SR CEMENT

PRODUCT DESCRIPTION

Cockburn Cement produces LH-SR Cement, conforming to Australian Standard AS 3972™.

LH-SR Cement is a blended cement manufactured to exacting standards at our Munster Works in Munster, Western Australia, for use in the construction and building industry and in domestic applications.

SUPPLY

LH-SR Cement is available in bulk, bulk bags and 20 kg multi-walled paper bags from the Munster Works and the Customer Service Centres in regional areas. Paper bags are palletised and stretch wrapped.

SPECIFICATION

LH-SR Cement exceeds the minimum specification for Types SR and GB cement given in AS 3972. LH-SR Cement is manufactured under a third party certified manufacturing and supply quality assurance system to ISO 9001 (BSI Certification No FS 604665).

LH-SR Cement is produced using a carefully prepared blend of Portland cement clinker, gypsum, and ground granulated blast furnace slag complying with AS 3582.2.

APPLICATIONS

LH-SR is ideal for use in underground backfilling applications and can also be used as general binders in areas such as soil stabilisation.

As LH/SR Cement exceeds the requirements of Type SR cement, it can be used in concretes and mortars where the possibility of attack by sulfate bearing waters and soils is high. For example, marine conditions, sewage treatment works, or where sulfates are in the soil (wherever salts occur naturally within the soil or as contamination from industrial wastes).

The sulfate attack of concrete is simplistically explained as a result of the reaction between free and mobile sulfates and cementitious alumina bearing compounds in the concrete (from the cement), to form a complex and expansive crystalline mineral. The mineral product of this reaction is characterised by crystal growth of greater volume than the original hydrated cement matrix. This expansive crystalline growth ultimately leads to internal stresses in the concrete structure and general weakening of the concrete.

LH-SR Cement has a low content of alumina bearing compounds. This minimises the material liable to sulfate attack and reduces the possibility of expansive products forming.

For LH-SR Cement, when used in concrete where sulfates will be present either within the soil or in sulfate bearing waters, minimum cement contents and maximum water cement ratios should be as recommended in the CCAA Technical Note 68 "Sulfate Resisting Concrete" and AS 3600.

Supplementary cementitious materials:

LH-SR Cement is compatible with Fly Ash, Amorphous Silica, and Ground Granulated Blast Furnace Slag conforming to the relevant sections of AS 3582.

Admixtures for concrete:

LH-SR Cement is compatible with concrete admixtures complying with AS 1478.

TYPICAL PROPERTIES

LH-SR Cement, containing slag, has enhanced workability and may set a little slower than Type GP cement. The ultimate strengths of the two cements are roughly equivalent.

Characteristics of LH-SR Cement compared to General Purpose Cement:

- Increased concrete bleed.
- Improved workability, compactability, flowability and plasticity.
- Extended setting times and slower initial strength development.
- More sensitive to poor curing practices.
- Lower heat of hydration.
- Better resistance to chemical attack (with adequate cement content).

HANDLING AND STORAGE

Transportation may be in bulk road or rail tankers or in paper bags. LH-SR Cement can be stored in concrete or steel silos and paper bags for up six months provided that protection against ingress of moisture is observed throughout the storage of the product.

LH-SR CEMENT

Typical Physical Properties

Test	Typical Values	AS 3972 Requirement
Fineness Index (m ² /kg) AS 2350.8		
	350 - 450	-
Setting Time (hr:min) AS 2350.4		
Initial	2:20	Min 0:45
Final	3:35	Max 10:00
Soundness (mm) AS 2350.5		
	< 3	Max 5
Compressive Strength ISO-CEN mortar bars (MPa) AS 2350.11		
3 Day	10 - 30	-
7 Day	25 - 41	Min 20
28 Day	45 - 65	Min 35
Mortar Expansion due to Sulfate Exposure (microstrain) AS 2350.14		
16 weeks	100 - 450	Max 750*

Note:

* When testing the sulfate resistance of cement mortar the difference in sulfate expansion between tests in the same laboratory, under conditions of repeatability can be up to 150 microstrain. To satisfy the requirements of sulfate resistance no single test may exceed 750 microstrain after 16 weeks.

** Does not comply with AS 3972 Peak Temperature Rise requirement when measured in accordance with AS 2350.7.

Typical Chemical Properties

Test	Units	Max AS 3972	Typical Values
Sulphur Trioxide	%	3.5	2.5
Loss on Ignition	%	-	1.6
Chloride	%	0.1	0.01
Equivalent Alkalies	%	-	0.50
Hexavalent Chromium	mg/kg	-	Trace
Crystalline Silica	%	-	Trace
Components			
Portland Clinker	%	-	20 – 45
Granulated Blast	%	-	50 – 70
Furnace Slag	%	-	
Gypsum	%	-	5 – 7
Mineral Addition	%	-	up to 7.5

SAFETY INFORMATION

For safety information refer to the Safety Data Sheet for Low Heat Cement.

CONTACT POINTS

For further information contact the Sales and Marketing Department at:

Cockburn Cement Ltd
 ABN 50 008 673 470
 Lot 242 Russell Road East
 Munster WA 6166
Telephone: 08 9411 1111
Email: sales@cockburncement.com.au

Web Site: www.cockburncement.com.au

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