

EARTHWORKS STABILISER

ROADBLEND

Roadblend is a special purpose cement produced by Sunstate Cement Ltd in Brisbane primarily for road base and subgrade soil stabilisation.

It is manufactured by grinding Portland cement clinker in carefully controlled proportions with granulated iron blast furnace slag which has been selected for its particular mineral and chemical qualities in ratio 60:40 slag:cement.

It is compatible with most granular and many plastic materials and can replace general purpose cement or hydrated lime in most stabilisation applications.

Roadblend complies with AS 3972, as both Type GB and Type SR cement.

CEMENT PROPERTIES

The following table provides an example for some typical cement properties for Roadblend manufactured by Sunstate Cement Ltd.

Property		Roadblend	AS3972
Setting Time	Initial	2-3 hours	45mins (min)
	Final	4-5 hours	10 hours (max)
Constancy of Volume (soundness test)		1.0mm	5.0mm (max)
Compressive Strength (Mortar) MPa	3 day	16-18 MPa	
	7 day	28-32 MPa	15 MPa (min)
	28 day	50-56 MPa	30 MPa (min)
Fineness Index		410-430m²/kg	

COMPATIBILITY

Roadblend is manufactured for stabilisation application. Blending with other cement or cement extenders is not recommended. Roadblend is compatible with admixtures complying with AS 1478.

PAVEMENT PROPERTIES

Pre-Specification. Where soils are suspected to contain sulfates of natural or industrial origin or where contact is expected with chemical solutions, analytical surveys are highly recommended and the appropriate cement selected and specified.

Sulfate Resistance. As with general purpose Portland cements, (Type GP) Roadblend's resistance to acid solutions including sulfuric acid below pH 6.5 is limited.

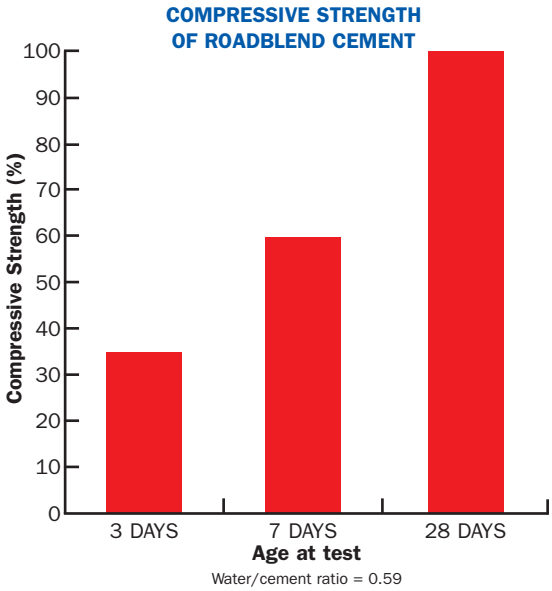
However, the life expectancy of the pavement will be maximised if a higher content of Roadblend is used and the pavement is fully compacted. It should be noted that higher cement contents may produce a cement bound material. The moisture content of the pavement should be closely monitored to ensure minimal variation from optimum. To maximise the performance, the stabilised material should be protected from frequent wetting through appropriate construction practices.

WORKABILITY

Roadblend will generally exhibit a longer working - time window than Type GP cement. Under similar conditions, working - time to place, compact and trim pavements can extend to 4 hours (max) in comparison to 2 hours (max) for pavements containing Type GP cements.

Roadblend is therefore suitable for applications such as deep lift stabilisation projects, where it is desirable to extend the length of pavement produced or where longer working times are required.

Compressive strength development. The following graph gives indicative data on the performance of Roadblend.



ROADBLEND

Additive Rate. Roadblend is suitable for use with most granular and many plastic materials and can be used to replace Type GP or blended cements commonly used in stabilisation application. However, the additive rate should be determined through a laboratory testing program. Most government authorities specify maximum plasticity index values for base and sub-base materials. The type of materials to be stabilised and the target unconfined compressive strength will determine the additive rate.

Roadblend may be used to modify materials with addition rates likely to fall in the range of 2% to 5% by weight of suitable untreated material (depending on the plasticity of the material). For cement bound materials cement contents can be expected to fall in the range of 4% to 6% by weight of untreated material.

The following table gives some guidance:

Material	Percentage of cement (%)	
	Lower Limit	Upper Limit
Reasonably graded crushed rock or gravel	2	4
Reasonably graded sand clayey gravel	3	5
Poorly graded, sandy clayey gravels	4	6

Mixing. Common practice is to specify cement contents in 0.5% increments. Most specifications require full compaction to be achieved within 60 - 90 minutes of the addition of the cement and water to the untreated material. As noted previously, when Roadblend is used this time frame may be increased. It is recommended that trials be carried out to determine the maximum time required to compact each treated material. Water should be clean and free from deleterious material. Water containing dissolved salts and organic matter may adversely affect the strength and durability of the pavement.

Placing. Roadblend may be used in both the in-situ method and the pugmill method. The mixing of the pavement materials should be carried out using purpose built stabilising equipment.

Curing. To ensure full strength development, it is essential that curing the cement stabilised layer is carried out for a period of at least seven days. Curing methods such as regular, uniform spraying with a water cart and the application of a bituminous prime coat membrane are common.

WORKING INSTRUCTIONS

Storage. Contact with air and moisture will cause hydration of the cement to occur and will alter the cement properties. The "shelf life" of Roadblend cement is therefore dependent on the storage conditions. It is recommended that Roadblend be retested prior to use if the age of the cement exceeds three months.

SUPPLY AND PRICE

Handling. A Material Safety Data Sheet can be obtained from Sunstate Cement Ltd.

Supply. Roadblend is available in bulk only. All enquires regarding supply and price should be directed to the address shown below.

Sunstate Cement Ltd.
ABN 58 010 421 879

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POSTAL ADDRESS: PO Box 350, Wynnum, Queensland 4178
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