BORAL CEMENT
Build something great™

SSC40

PRODUCT DATA SHEET

SSC40 is a specialised binder produced for stabilisation applications. It is manufactured from selected ground granulated blast furnace slag (GGBFS) and Cement, as a nominal blend of 60:40.

USES

SSC40 is manufactured for the stabilisation of road base, sub-base and sub-grade materials. **SSC40** is particularly useful in providing increased resistance to attack by pyritic aggregates.

SSC40 may be used in soils with either low or high plasticity.

SSC40 is suitable for applications such as in situ (including deep lift) stabilisation or pugmill blending. The mixing of pavement materials should be carried out using purpose built stabilising equipment.

Additional rates of up to 6% by weight of suitable untreated materials can be expected.

Caution: **As SSC40 is manufactured for stabilisation applications its use in other forms of construction should be referred to the manufacturer.**

COMPATIBILITY

SSC40 should not be blended with other cements.

SOIL PROPERTIES

It is essential that appropriate testing is carried out on all materials prior to using **SSC40**.

SSC40 is more suited to materials of a granular nature with a lower Plastic Index (PI).

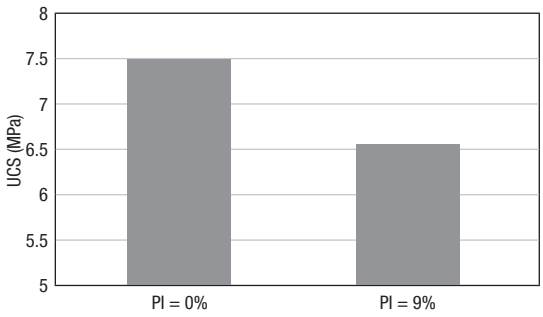
STRENGTH

The strength of **SSC40** measured as an Unconfined Compressive Strength (UCS) in MegaPascals (MPa) is shown in the following graph. The materials tested were manufactured hard rock quarry products.

Two samples were chosen:
Sample 1: DGB 20 with a Maximum Dry Density (MDD) of 2.33t/m³ with a moisture content of 8.1% and P1 of 0%.
Sample 2: ROC with an MDD of 2.30t/m³ with moisture content of 9.5% and P1 of 9%.

An additive rate of 4% **SSC40** was used.

Unconfined Compressive Strength



Note: Test method used - RMS T131 7 Day Accelerated (AC) UCS. (Samples @ 1 hour after mixing binder)

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WORKABILITY

SSC40 will generally exhibit shorter working times than those stabilisation additives which do not contain Portland Cements in their manufacture. **SSC40** however, will often provide higher early strengths in suitable materials.

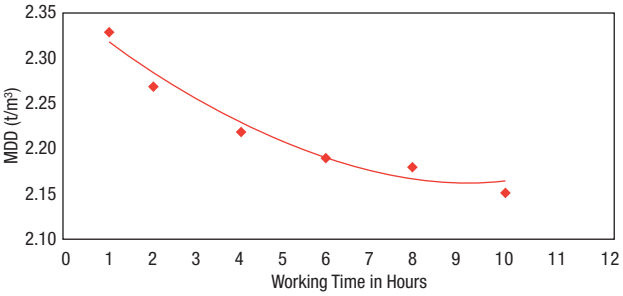
The Roads & Maritime Services (RMS) of New South Wales specifies working time for pavement materials in terms of effect on maximum dry density (MDD) and unconfined compressive strength (UCS) in MegaPascals (MPa). Generally a maximum working time of 12 hours is specified.

Working time is determined by the following:

Density = 97% of 1 hour test results.
Strength = 80% of 1 hour test results whichever is the lesser.

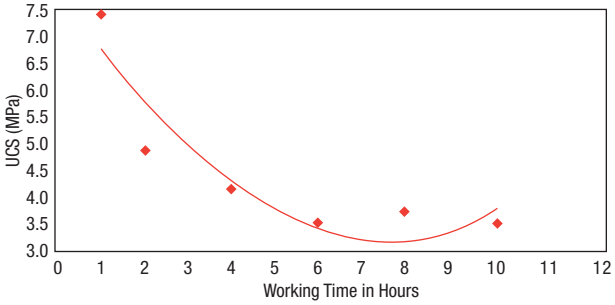
Set out below are two graphs showing working times for both parameters using the DGB 20 (Sample 1) material with 4% **SSC40** added.

Maximum Dry Density



MDD @ 1 hour = 2.33t/m³
- 97% of 1 hour result = 2.26t/m³
- Allowable working time = 3.0 hours (from the graph)

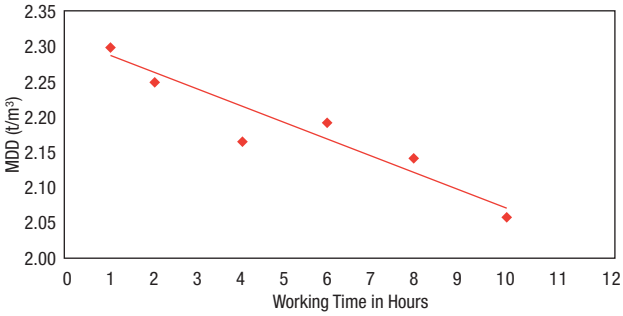
Unconfined Compressive Strength



UCS @ 1 hour = 7.50 MPa
- 80% of 1 hour result = 6.00 MPa
- Allowable working time = 1.75 hours (from the graph)

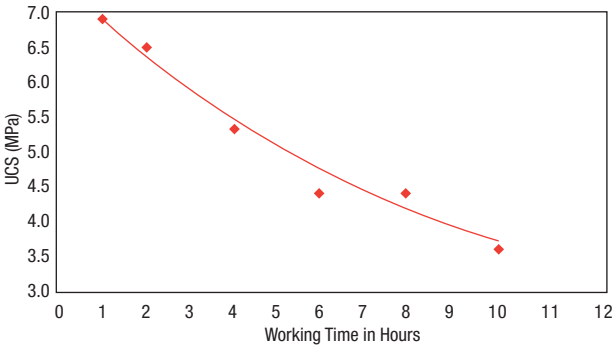
The following graphs show working times for both parameters using the ROC (Sample 2) material with 4% **SSC40** added.

Maximum Dry Density



MDD @ 1 hour = 2.30t/m³
- 97% of 1 hour result = 2.23t/m³
- Allowable working time = 3.25 hours (from the graph)

Unconfined Compressive Strength



UCS @ 1 hour = 6.90 MPa
- 80% of 1 hour result = 5.52 MPa
- Allowable working time = 3.50 hours (from the graph)

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REWORKABILITY

The reworkability of materials is affected by the soil type and the binder chosen. **SSC40** has a reduced reworkability when compared to binders which do not use Portland Cements in their manufacture.

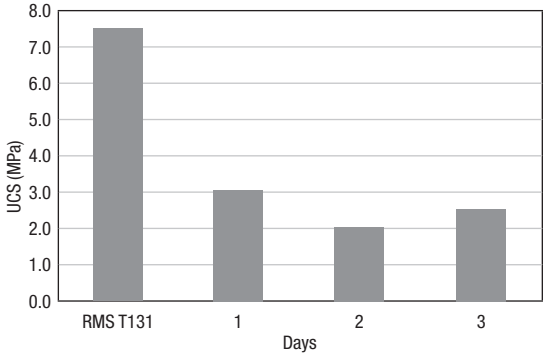
However, materials treated with **SSC40** may still have the potential to be reworked for up to three days depending on suitable test results.

Therefore problems such as levelling errors, rutting or other damage caused by either traffic or weather conditions can often be rectified by reworking the material without the need for additional binder.

The following graphs show the effect on the unconfined compressive strength after reworking both samples over a three day period. An addition rate of 4% **SSC40** was used.

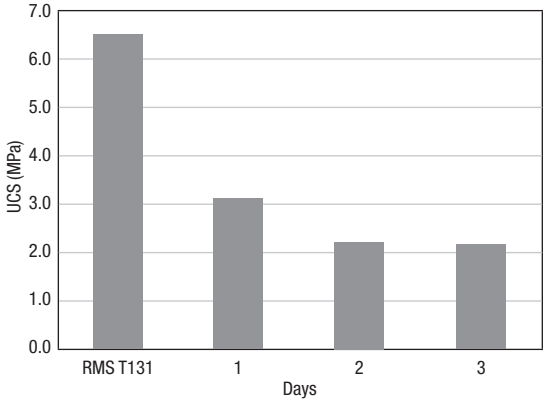
Sample 1.

Unconfined Compressive Strength



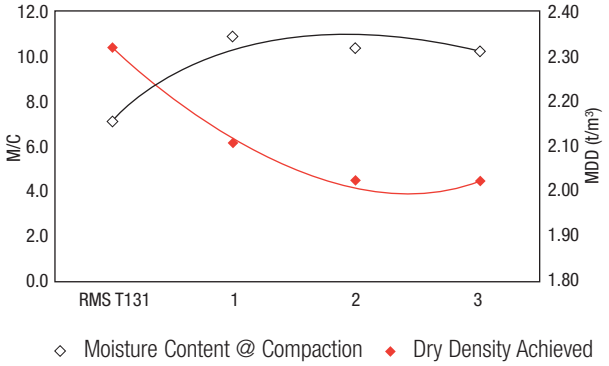
Sample 2.

Unconfined Compressive Strength

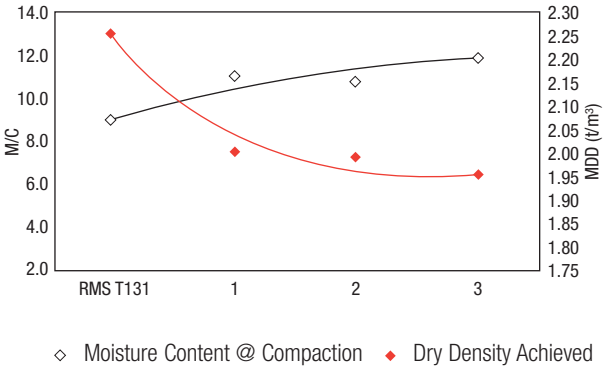


The following graphs show the effect of reworkability on the MDD and moisture contents (M/C) of both samples.

Sample 1:



Sample 2:



Test Method (Reworkability)

Four pairs of UCS cylinders were cast.

- *One pair of cylinders were moulded and cured for 7 days at 65°C and tested (4 hr soak).*
- *One pair of cylinders were damp cured at 23°C for 24 hours broken down, remoulded and cured for 7 days at 65°C then tested (4 hr soak).*
- *One pair of cylinders were damp cured at 23°C for 48 hours broken down, remoulded and cured for 7 days at 65°C then tested (4 hr soak).*
- *One pair of cylinders were damp cured at 23°C for 72 hours broken down, remoulded and cured for 7 days at 65°C then tested (4 hr soak).*

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STORAGE

Contact with air and moisture will cause hydration of the cement properties. The "shelf life" of **SSC40** is therefore dependent on storage conditions. It is recommended that **SSC40** be retested prior to use if the age of the cement exceeds three months.

HANDLING

For further safety information consult the Boral Cement Material Safety Data Sheet for the product, available on our website **www.boral.com.au**

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