

# Guidelines for Integrally Coloured Concrete

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## Weather

- Do not pour coloured concrete when rain, frost or high winds are forecast.
- Ideal pouring conditions are when the temperature is between 15-26°C.
- Schedule placement of coloured concrete to minimise exposure during the hottest part of the day.
- Provide extra curing protection to dark or black coloured concrete as these colours absorb more heat.
- Be aware of the air temperature. In cool weather it takes less water to achieve a workable mix. Variations in the water/cement ratio can significantly affect colour.
- In weather conditions that result in the increase in evaporation of pore water within the concrete, we recommend the use of a finishing aid such as CCS Aliphatic Alcohol.

## Mixing

- Open paper bag and remove the fast-melt plastic bag containing pigment. The plastic bag is a fast-melt bag only when in contact with water.
- Add the fast-melt bag full of pigment to the concrete mixer in conjunction with initial water and aggregate.
- Once sufficient bags have been added to the mixer, allow the mixer to turn for 5-10 minutes.
- Ensure that the same ratio of water, cement and raw materials is used for each load of concrete of the same colour.
- The concrete slump should be kept consistent at 100mm or less, and should not exceed 125mm for any load. A richer, more intense colour is achieved with a low water/cement ratio.
- If possible, use the largest size of coarse aggregate to keep the water content level low.
- Purchase all concrete from the same supplier and plant location for each project.
- Do not add calcium chloride to accelerate the mix.
- CCS Pigments can be used with set accelerators and retarders (non-chloride type), surface retarders, water reducers, super-plasticisers, internal waterproofing, fly ash and air entrainer. Take extreme caution when using third generation plasticisers such as poly carboxylates as they impact on the final colour and finish.
- Allow no more than 1 to 1<sup>1/2</sup> hours between batching and placing.
- Avoid using reactive aggregates.
- Minimise vibration of the concrete. Place concrete near its final location and use shovels to move it.
- A maximum dose rate of colour should not exceed 10% of the total cementitious content (ie. cement, fly ash, lime and silica fume). Dose rates of 3-6% are common.
- Always add pigment by weight, not by volume.
- Avoid direct exposure of coloured concrete to moisture and condensation whilst curing to minimise effects of discolouration and efflorescence.

## Sub-grade/Reinforcement

- Use a compact, dampened, though well drained consolidated sub-grade.
- Use correct joints and saw cuts to minimise cracking.
- Protect surrounding slabs and structures to prevent damage.

# Guidelines for Integrally Coloured Concrete (cont.)

## Finishing

- Bull float after striking off the slab. Avoid using magnesium bull floats.
- Wait for bleed water to evaporate before trowelling. Early final trowelling before bleed water has evaporated can cause entrapped moisture, discolouration and dusting of the surface.
- Avoid over-trowelling. This causes burning and discolouration. Darkening and discolouration is more likely to occur as trowelling time increases.
- Hand finishing of coloured concrete is ideal. Take extreme caution if power trowelling with a helicopter as uneven or over-trowelling may result in discolouration.
- Avoid adding excess water to tools or to the surface. No additional water should be added after a portion of the load has been discharged.
- Do not add cement powder or CCS Pigments to the surface of wet concrete.
- All final hand finishing should be done in the same direction. Use consistent finishing practices at all times.
- CCS Aliphatic Alcohol can be used to help reduce evaporation during the placement and finishing (trowelling) stage. Aliphatic alcohol should be applied in a consistent manner following the manufacturer's recommendations. Coloured concrete should then be cured in accordance with Australian Standards such as AS 3799-1998.

## Curing

- To prevent surface blemishing, do not cure with plastic sheeting, intermittent wetting and drying, membranes, paper, sodium or fluoro-silicate hardeners and other compounds which can cause discolouration.
- Apply a curing compound as soon as the surface will allow. Ensure any curing compound is structurally and aesthetically suitable for decorative concrete. CCS Slab Clad is such a product.
- CCS Same Day Sealer in conjunction with a top coat of a premium sealer such as CCS Hi-Build Enduro is suitable for domestic projects. **Note:- Only apply CCS Hi-Build Enduro 7-21 days after application of CCS Same Day Sealer (Concrete should not be sealed until it has a uniform colour and there is no apparent moisture).**
- The application of a sealer will also protect from effects of oil, grease, dirt and weather.
- Ensure that sufficient joints are provided to control cracking.
- If saw-cutting is used for control joints, rinse off all residue to prevent stains and discolouration.
- Be prepared for the whole slab to lighten in colour during curing. The final "true" colour will start to become apparent four days after placement however final colour will be achieved after full curing of the concrete (approximately 28 days after placement).

For more information please phone 1800 077 744 or visit [www.concretecoloursystems.com.au](http://www.concretecoloursystems.com.au)

**Please Note:-** The information given in this data sheet is based on our current knowledge of the product when properly stored, handled and applied. We cannot guarantee that the product will be suitable, effective or safe when used for any purpose other than its stated uses.

To the extent that it is lawful, we exclude warranties implied by law and limit our liability to the cost of replacing the product. We accept no responsibility for loss or injury caused by improper use, inadequate preparation, inexpert or negligent application, or ordinary wear and tear.

Service or advice given by our staff should not amount to responsibility for the project - since the owner, or their contractor (and not River Sands), is responsible for procedures relating to the application of the product.



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