



CONCRETE CANVAS®

Concrete on a Roll

SALINE RESISTANCE TESTING



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Saline Resistance

Based on Concrete Canvas Ltd in-house testing and CTL testing to ASTM C1185

Concrete Canvas® GCCM* (CC) products were tested to assess the material's resistance to saline concentrations from 0 to 7% across a range of water temperatures. The testing was based on a methodology developed in-house to assess the key performance characteristics of CC, including the initial set and flexural and compressive strength development.

The test method to assess the initial set time was conducted on the CC concrete blend itself rather than a specific product thickness. Saline concentrations were produced using a marine salt and set at 0%, 3.5% (approx. sea-water), 5% (1.5x concentration) and 7% (2x concentration). The temperature was controlled using a water bath and tested at the following levels; 1.0°C, 20°C, 30°C and 40°C. The strength development tests were conducted on 8mm thick CC (CC8™) as a representative CC product thickness at 3.5% and 7% concentrations.

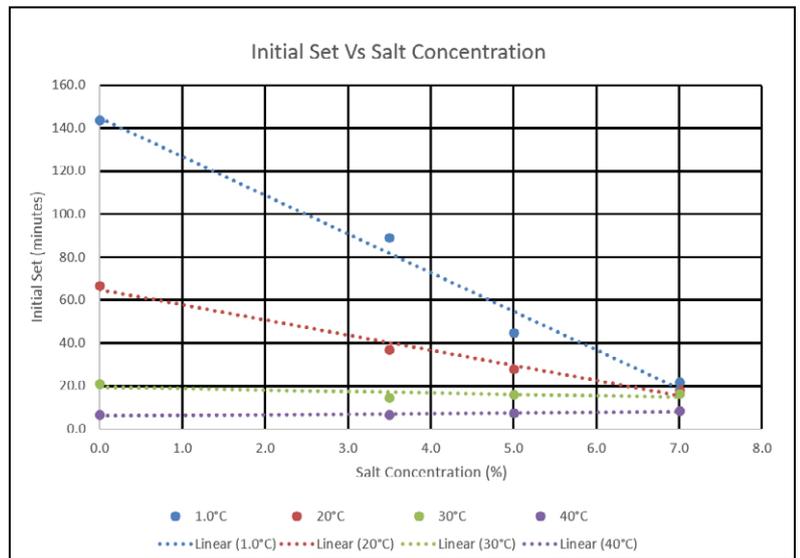
Testing has also been conducted by CTL Group Laboratories to ASTM C1185 summarised on the following page.

Summary of Results

Initial Set

The data showed good correlation and consistency. The initial setting time was reduced with increased salinity and higher temperatures. The effect of temperature dominated with little variation in initial set time for tests at 40°C across the tested salinity range.

At average ambient temperatures (20°C) hydration with typical sea-water salt concentrations (3.5%) CC is seen to approximately half the initial set time when compared to fresh water.



Strength Development

The 1-day strength data shows a short-term reduction in the compressive and flexural strength of CC for salinity concentrations of 3.5% and 7%. This effect is observed to be temporary with strengths data reaching the declared values at the 10-day test point.

Any deviation from the control at the 28-day strength point is within experimental tolerance.

	Compressive Strength		
	1 Day	10 Day	28 Day
0% Salinity	100%	100%	100%
3.5% Salinity	84%	110%	115%
7% Salinity	70%	100%	100%

	Flexural Strength		
	1 Day	10 Day	28 Day
0% Salinity	100%	100%	100%
3.5% Salinity	74%	90%	97%
7% Salinity	78%	97%	93%

Conclusion

Hydration of CC with saline water reduces the initial setting time and short term strength development, however the effect on medium to long term strength is negligible.

*Geosynthetic Cementitious Composite Mat