

Accepted Manuscript

Performance of passive methods in plastic shrinkage cracking mitigation

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PII: S0958-9465(18)30122-7

DOI: [10.1016/j.cemconcomp.2018.05.008](https://doi.org/10.1016/j.cemconcomp.2018.05.008)

Reference: CECO 3061

To appear in: *Cement and Concrete Composites*

Received Date: 2 February 2018

Revised Date: 1 May 2018

Accepted Date: 7 May 2018

Please cite this article as: S. Ghourchian, M. Wyrzykowski, L. Baquerizo, P. Lura, Performance of passive methods in plastic shrinkage cracking mitigation, *Cement and Concrete Composites* (2018), doi: 10.1016/j.cemconcomp.2018.05.008.

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1 Performance of passive methods in plastic shrinkage 2 cracking mitigation

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9 Abstract

10 The occurrence of plastic shrinkage cracking in fresh concrete may significantly compromise its
11 service life. Therefore, it is essential to reduce the crack width with appropriate, efficient and
12 effective methods. This study is dedicated to comparing the ability of passive mitigation methods
13 including: Shrinkage Reducing Admixtures (SRA), accelerators based on Calcium Silicate
14 Hydrate seeding agents and curing compounds, in controlling the plastic shrinkage cracking in
15 the drying state. The performance of the different admixtures was evaluated according to the
16 ASTM C1579-13 standard. Furthermore, a series of complementary test methods were utilized to
17 study the mechanism of action of the different admixtures. Among the crack mitigation methods
18 that were studied in this paper, SRA were the most effective.

19 Keywords:

20 Fresh Concrete; Plastic Shrinkage Cracking; Mitigation Methods; Admixtures; Additives

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