

**RILEM TC 281-CCC – discussion 30<sup>th</sup> August 2008, TU Delft,  
Faculty CEG, The Netherlands**

**Minutes WG6: Carbonation of alkali-activated materials**

**WG leaders**

Gregor Gluth  
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**Meeting Participants**

Marija Nedeljkovic  
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**Opening discussion**

M. Cyr shared with the attendees the outline for a review paper on carbonation of alkali-activated concretes, emphasising influence of carbonation in mechanical, transport properties of the concretes, and potential influence of carbonation on corrosion. It was highlighted that there are several reviews available in this topic, hence a different approach might give us scope to do identify trends. From the discussions it was decided:

- The review will be mainly dedicated to concretes, as previous reviews have been focused on microstructural changes induced by carbonation.
- The review will not be solely dedicated to alkali-activated slag systems, instead we will include high levels of cement replacement by ground granulated blast furnace slag (>70 wt.%), using alkali activated slag cements as an example for high replacement volume.

**Task agreed**

- Creation of a database on available publications (e.g. journal, conference proceedings), and unpublished data on carbonation of alkali-activated slag concretes and concretes based on CEM III binders.
- The database will be organised considering the type of binder, studied materials properties and carbonation conditions used (Marija volunteered to create google documents to share with other WG members)
- The database will be used to create graphics to enable identification of relationship between carbonation depth vs. porosity; carbonation depth vs. compressive strength and other properties.

**Conclusions.** Literature review should be outlined 14<sup>th</sup> October 2018. The study may provide a starting point for future research of carbonation in AAMs.

**Recent reviews in the literature:**

*Pacheco-Torgal, F., et al., Handbook of alkali-activated cements, mortars and concretes. 2014: Elsevier.*

*Arbi, K., et al., A Review on the Durability of Alkali-Activated Fly Ash/Slag Systems: Advances, Issues, and Perspectives. Industrial & Engineering Chemistry Research, 2016. 55(19): p. 5439-5453.*

*Zhang, J., Shi, C., Zhang, Z. and Ou, Z., 2017. Durability of alkali-activated materials in aggressive environments: A review on recent studies. Construction and Building Materials, 152, pp.598-613.*

*Zhang, J., Shi, C., Li, N., Zhang, Z. and Farzadnia, N., 2018. Carbon dioxide sequestration by alkali-activated materials. In Carbon Dioxide Sequestration in Cementitious Construction Materials (pp. 279-298).*