

Correspondence

Reply to: Discussion of the paper ‘Application of degree of hydration concept and maturity method for thermo-visco-elastic behaviour of early age concrete’ by J. Zhang and J.J. Beaudoin

The author would like to thank J. Zhang and J.J. Beaudoin for their interest in the paper and for their valuable analysis. In their Eq. (1) Zhang and Beaudoin confirm once again that the definition of Chengju Guo’s maturity function implies equivalence to the degree of cement hydration. This was already shown in Section 2.4 of the paper, Eqs. (13)–(15).

In the second part of the discussion, Zhang and Beaudoin essentially warn that a single maturity function for all properties of one concrete mix may not exist. This is not in contradiction with the conclusions of the paper, but is rather an additional comment. Indeed, in the paper and in the conclusions, the author never claimed the existence of one single maturity function for all concrete properties. The first two conclusions only cover strength prediction problems. The third conclusion indeed deals with another concrete

property, namely basic creep. For the basic creep, using the degree of hydration concept, the author experimentally found that the maturity function actually shows to be the same as the maturity function applicable for strength development. Independently, as also mentioned in the paper, Gutsch found the same conclusion, using the maturity method in stead of the degree of hydration concept. The paper does not give any conclusions on the maturity function linked to other concrete properties. This is to be studied in more detail. In this respect, the warning of Zhang and Beaudoin is certainly valuable.

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