



Discussion

Reply to the discussion by John Bensted of the review paper
“Sulfate attack research: whither now”[☆]

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We are indebted to Dr. Bensted for providing his insights on additional issues pertinent to sulfate attack research. An intention of publishing a review paper was to elicit such responses from the research community. It is hoped that by pooling together ideas from various researchers, the problem of sulfate attack could be further clarified.

The review presented in our paper was primarily written from a North American perspective, taking into account the interest generated by the ongoing litigations in California. The references cited from Europe primarily deal with the issue of thaumasite formation (Refs. [18,20] from the original paper).

As stated by Dr. Bensted, there are several shortcomings in the use of SEM as an investigative tool. The pitfalls of the

specimen preparation for electron microscopy examination are, indeed, well documented. The authors agree that it is essential to support electron microscopy data with optical petrographic work. It should be realized, however, that the usefulness of the SEM technique cannot be completely ruled out and that the technical literature contains many examples indicating that SEM observations have been useful in understanding the mechanism of sulfate attack (Refs. [2–4,21,22] from the original paper).

Finally, the term ‘decalcification’ as used in our paper refers to the progressive reduction of the C/S ratio within the C-S-H gel. This is, indeed, due to the liberation of lime into the solution phase by the C-S-H in order to stabilize the pH.

[☆] Cem. Concr. Res. 31 (6) (2001) 845–851.

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