

MPA Cement Fact Sheet 4

Alkali silica reaction in concrete (ASR)

Introduction

During 1975-1990 some expansion and cracking occurred in a number of buildings and structures due to a reaction between certain types of aggregate and alkalis in the concrete pore fluid. This alkali silica reaction (ASR) can often continue for more than five years before any damage becomes apparent. This form of concrete deterioration received widespread press coverage, often being dubbed ‘concrete cancer’. Reassurance is still needed that recently constructed buildings will not suffer from ASR in the future.

Is ASR still a problem today?

Extensive research [much of it involving MPA Cement (formerly BCA)] has been undertaken since 1975 on the causes and prevention of damaging ASR. As a result of this research, simplified guidance for concrete producers (and other stakeholders) on the selection of aggregates and limitation of the total amount of alkali in concrete to prevent damage due to ASR has been included in BS 8500, the British Standard for *Concrete – Complementary British Standard to BS EN 206-1*. Compliance with this guidance is generally considered a very conservative method of minimising the risk of damaging ASR and no new cases have been reported since 1990.

Where can I find out more?

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Further reading

For the historical basis of the standardised guidance, see Building Research Establishment Digest 330 (2004), *Alkali -silica Reaction in Concrete. Parts 1-4*.

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