



ABSTRACT

In Western Cape, certain aggregates have previously been identified as alkali-reactive and potentially reactive both through performance records and laboratory testing. This led to the conclusion that aggregates that were previously classified as unreactive will not exhibit any signs of Alkali-silica reaction (ASR) on concrete structures, and for structures that used reactive aggregates, the reaction will be exhausted after a certain number of years. This characterization was done nearly 40 years ago. From the previous characterization to the present time, there have been developments in understanding ASR, experimental procedures, and improvements in concrete technology (cement composition and concrete mix designs), all of which have an impact on the understanding and progression of ASR.

This research focuses on understanding the mechanisms driving the reaction within the aggregates (the reactants) to enhance the characterization of Western Cape aggregates for ASR. The paper will utilize recently developed laboratory testing procedures to contribute to the diagnosis and prognosis of existing structures.
