

# Rapid Method for Determining the Alkali Reactivity of Carbonate Rock

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Grattan-Bellew (1981) showed that by using miniature rock prisms and a linear differential transformer, the expansion of reactive aggregate can be displayed within the first week; this observation was confirmed by us and furthermore we showed that that the expansion of the rock prism can be accelerated considerably by increasing the temperature, Figure 1.

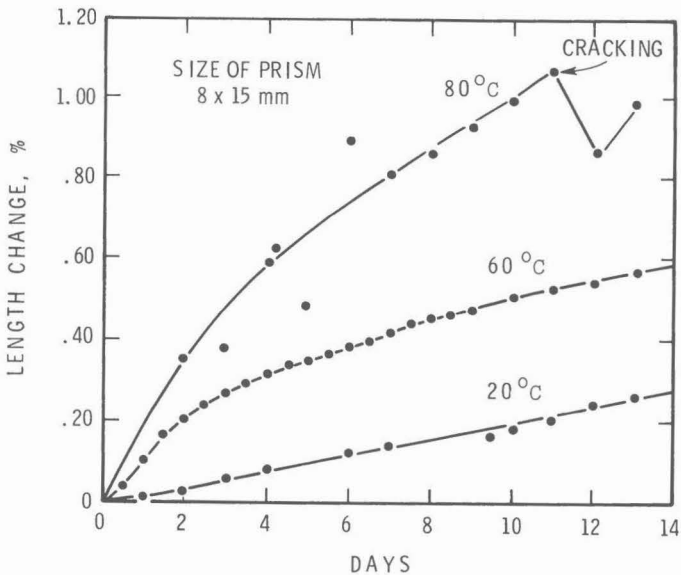


FIGURE 1

EXPANSIONS OF KINGSTON ROCK PRISMS IN  
IN KOH SOLUTION CURED AT DIFFERENT  
TEMPERATURES

Figure 1 which was prepared by us this year shows the expansion of rock prisms in 1N KOH solution at various temperatures. A displacement sensor was used to monitor the length change continuously during the experiments. Expansions of 0.20% at 60°C and 0.38% at 80°C were recorded after two days. Expansion thus increases with temperature. We conclude that using this method it is possible to determine the reactivity of alkali-carbonate reactive rocks in a very short period of time. It should however be noted that these results are preliminary and further research is needed to confirm them.

Reference:

- 1) Grattan-Bellew, P.E., Cem. and Concr. Res. Vol. 11, pp. 699-711 (1981).