

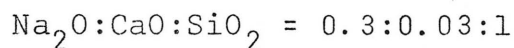
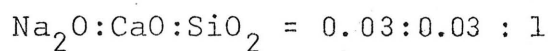
Examination of the water absorption and
the viscosity of the alkali-silica gels.

Expansion in concrete and mortar in practice appears when the content of alkalis in concrete and mortar exceeds some critical value and when the sand contains reactive particles of silica.

Not much are known about the parameters of the alkali-silica reaction and the characteristics of the reaction product. Does the concrete crack during the reaction or during the water absorption of the gels? Which one of the parameters determine the detrimental alkali-silica reaction in concrete?

Could the cracking and the following expansion in concrete be caused only by the water absorption of the gels? Some of the parameters are the chemical composition of the gels and the availability of water.

I am examining the water content and the deformity of synthetical gels. The gels have the composition (expressed as mole alkali in proportion to 1 mole SiO_2) as mentioned below:



The gels are examined in the range from 0,60 to 1,00 relative humidity of air. The results for the present show that the water content and deformity of gel I and gel II change rapidly with the relative humidity of air ranging from 0.90 to 1.00. The gels (I and II) are in equilibrium with the air within a week when using a good air mixing.

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