Electrochemical Modifications in Kaolinite-Glass Bead Plugs

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Abstract: Electrochemical treatment of kaolinite-glass bead plugs in the presence of water and $CaCl_2$ solutions produces dissolution of the glass beads, corrosion of the anodes, and transport of the released elements toward the cathodic zone. In this area, new mineral phases (both amorphous and crystalline) are synthesized. Most of these new phases, and especially the calcium silicate hydrate (CSH-1), are well known to exhibit important cementing properties. The nature and the extent of the modifications brought about by the treatment are dependent on the nature of the electrodes, the pH and the ionic strength of the circulating electrolyte, and the duration of the treatment.

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