

Effects of pH on calcium carbonate precipitation under magnetic field

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Abstrak

Magnetic field effect on CaCO₃ precipitation is the key parameter in evaluating the effectiveness of Anti-scale Magnetic Treatment (AMT). The purpose of this study was to investigate magnetic fields influence on CaCO₃ precipitation in high and low super-saturated CaCO₃ solution by varied pH CaCO₃ solution using circulation flow fluid system. The observation results in the high super saturated solution (pH 8.5) showed the increase of precipitated CaCO₃ in magnetized solutions compared to those in non-magnetic solution during circulation process. In the low super-saturated CaCO₃ solution (pH 6.4) it was found that magnetic treatment increased CaCO₃ precipitation after circulation process. In high super-saturated solution, magnetic field strengthens ion interactions, which reduce precipitation during circulation process. However, in low super-saturated CaCO₃ solution, magnetic field weakens hydrate ion interaction which indicated by decreasing of the conductivity of solution. It increases the precipitation of CaCO₃ after the circulation of magnetization process has completed.