Experimental results

In previous work we were following how the amount of different crystal symmetries of precipitated calcium carbonate depends on the intensity of the magnetic field. The present work was to confirm the reproducibility of the experiment itself and field of 1.3 T was used in all experiments. Crystalline forms of CaCO$_3$ (calcite, aragonite and vaterite) were identified in the powder samples and the mass fractions were determined by Rietveld refinement. The structural models of the three phases were taken from the ICDD [7]. The program DBWS [8] was used for the refinement of typically 22 variables. The agreement between the experimental and the calculated patterns were within accepted limits (Rwp ~10^{-5}). Literature data [1] claim that the AMT is not widely used in the practice because of very low reproducibility, but our results completely dispute these claims. They show that the reproducibility of experiments is very good and the amount of precipitated calcium carbonate in the aragonite + vaterite crystal forms, which do not form a scale on exposed surfaces, is between 87.3 and 96.4.

Conclusions

A quantum two level molecular system, in its initial stage as a function of the magnetic field is described by the same Hamiltonian as the angular momentum of the two level atomic system. In this case one fluctuating mode of the magnetic field.

The amount of precipitated CaCO$_3$ in water flow systems obtained by the quantitative X-ray analyses is mostly in aragonite and partly in vaterite form, crystals formed in the presence of the magnetic field.

The diffraction spectrum of precipitated CaCO$_3$ obtained from water treated with the applied magnetic field.

The angular momentum of the rotating water energy from an external magnetic field through the angular momentum of the rotating water system.

The physical anti-scale magnetic treatment (AMT) has been introduced and studied experimentally. In this communication we discuss the coupling of the magnetic field. The present work was to confirm the reproducibility of the experiment itself and field of 1.3 T was used in all experiments. Crystalline forms of CaCO$_3$ (calcite, aragonite and vaterite) were identified in the powder samples and the mass fractions were determined by Rietveld refinement. The structural models of the three phases were taken from the ICDD [7]. The program DBWS [8] was used for the refinement of typically 22 variables. The agreement between the experimental and the calculated patterns were within accepted limits (Rwp ~10^{-5}). Literature data [1] claim that the AMT is not widely used in the practice because of very low reproducibility, but our results completely dispute these claims. They show that the reproducibility of experiments is very good and the amount of precipitated calcium carbonate in the aragonite + vaterite crystal forms, which do not form a scale on exposed surfaces, is between 87.3 and 96.4.

References


