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Addition/Correction

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Addition to "Mechanistic Study of Magnesium Carbonate Semibatch Reactive Crystallization with Magnesium Hydroxide and CO_2"

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The original article, "Mechanistic Study of Magnesium Carbonate Semibatch Reactive Crystallization with Magnesium Hydroxide and CO_2" (DOI: 10.1021/ie501706j) showed the analysis results of the mother liquor and solid phase during semibatch precipitation of magnesium carbonate that were obtained. Reference 18 (Han et al., Mass transfer and kinetics study of heterogeneous semibatch precipitation of magnesium carbonate. *Chem. Eng. Technol.* **2014**, *37* (8), 1363−1368 (DOI: 10.1002/ceat.201300855)) of the original I&ECR article reported preliminary results of the reactive crystallization of magnesium carbonate. Reference 18 focused on study of the mass transfer between the gas and liquid phases and the possibility of investigating kinetics via solid phase quantification with Raman spectroscopy. The preliminary research results presented in ref 18 formed the foundation for further study.

The original I&ECR article continued investigation of the mechanism of the reactive crystallization of magnesium carbonate. The effects of the operation parameters were studied by following both the concentration of Mg^{2+} and total carbon in the solution phase, as well as the formation of crystalline nesquehonite. Analysis of the formation of crystalline nesquehonite was performed with a newly developed analysis method, which resulted in a new composition analysis methodology for the solid mixtures of magnesium hydroxide and nesquehonite, based on the thermal analysis method. The combined information from the liquid and the solid phases allowed identification of the onset of nucleation, insights into the evolution of the precipitation and in-depth understanding of the subprocesses involved in the reactive crystallization process, e.g., the dissolution of the reactant. Moreover, the obtained particle size distributions of the final products are presented together with scanning electronic microscopy (SEM) images of the crystals taken throughout the entire process, which provides additional evidence to support the interpretation of the effects of the operation parameters. In summary, although ref 18 and the present work both studied semibatch reactive crystallization of magnesium carbonate, the present work contains new results that lead to a deeper understanding of this complicated heterogeneous reactive crystallization. Thus, the present work gives valuable new information for aspects of industrial crystallization, especially carbonation processes.

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