# EFFECT OF INITIAL REACTANT CONCENTRATION ON THE CALCIUM SULFATE SIZE DISTRIBUTION

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| **ABSTRACT**  In ancient Egypt and medieval Europe, gypsum, known as alabaster, was used for wall decorations and reliefs (Jeong et al., 2019). Gypsum, a mineral abundant in nature, consists of calcium sulfate (CaSO4). In parallel with developing technology, traditional practices have also become widespread. The ability to control the size distribution during crystallization in synthesis has enabled its use in various fields. [1,2].  This study investigates the effect of initial concentrations of reactants on the size distribution of CaSO4 crystals that precipitate at low temperatures through the reaction of calcium chloride (CaCl2) and sodium sulfate (Na2SO4) spontaneously. The sizes of the resulting crystals were measured via SEM analysis to determine their size distribution. (This study was prepared from the student's master's thesis.)  **References:**  [1] Gong, S., Li, X., Song, F., Lu, D., Chen, Q. (2020). Preparation and Application in HDPE of Nano-CaSO4 from Phosphogypsum. ACS Sustain Chem Eng, 8:4511–20. https://doi.org/10.1021/acssuschemeng.9b07632.  [2] Wang, Y., Li, Y., Yuan, A., Yuan, B., Lei, X., Ma, Q., et al. (2014). Preparation of calcium sulfate whiskers by carbide slag through hydrothermal method. Cryst Res Technol, 49:800–7. https://doi.org/10.1002/crat.201400155. |

# Keywords: Concentration, CaSO4, Calcium sulfate, Size distribution, Crystallization, Bassanite

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