

## The Effect of Solution Density on the Synthesis of Magnesium Borate from Boron-Gypsum

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**Abstract :** Boron-gypsum is a waste which occurs in the boric acid production process. In this study, the boron content of this waste is evaluated for the use in synthesis of magnesium borates and such evaluation of this kind of waste is useful more than storage or disposal. Magnesium borates, which are a sub-class of boron minerals, are useful additive materials for the industries due to their remarkable thermal and mechanical properties. Magnesium borates were obtained hydrothermally at different temperatures. Novelty of this study is the search of the solution density effects to magnesium borate synthesis process for the increasing the possibility of boron-gypsum usage as a raw material. After the synthesis process, products are subjected to XRD and FT-IR to identify and characterize their crystal structure, respectively.

**Keywords :** boron-gypsum, hydrothermal synthesis, magnesium borate, solution density

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