

Title:

Inorganic salt crystallizations by thermal gradient technique

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Abstract

A six-membered group of high, middle, and home-schooled students ages 12–17 designed an apparatus and protocol for crystallization of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ and KH_2PO_4 aboard the International Space Station. The crystals are obtained by cooling saturated salt solutions from 20°C to 4°C for one week. The crystal quality is compared to that of the respective crystals obtained during the ground control experiments. The results of the physical characterization and X-ray structural analysis of the crystals obtained in microgravity are compared and contrasted with the expected outcome. Organization and technical details as well as educational impact of this scientific outreach activity are discussed.