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Natural convection during a phase change of sodium acetate trihydrate YASUNORI OUCHI, The University of Tokyo, SATOSHI SOMEYA, TETSUO MUNAKATA, National Institute of Advanced Industrial Science and Technology — A latent heat storage system has higher storage capacity than a sensible heat storage system. Sodium acetate trihydrate has large latent heat at the temperature, 58°C, suitable for a hot-water supply system. The present study focused on convection in a phase change process to understand the heat transfer from the phase change material(PCM). The convection occurred only in certain conditions of supercooling temperature and PCM concentration. A spicular crystal grew quickly and the thermal convection couldn't be detected at large supercooling temperature with high concentration of PCM. In the range of 5 ~ 13°C of supercooling temperature, the buoyancy driven convection due to the latent heat of PCM was measured using the PIV. It was also observed that a part of CH₃COONa·3H₂O solution was sucked into the growing spicular crystals to supply CH₃COONa at the condition with small concentration and at 5 ~ 13°C of supercooling temperature.

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