

SYNTHESIS AND THERMAL BEHAVIOR OF SERRABRANCAITE ($\text{MnPO}_4 \cdot \text{H}_2\text{O}$)Rattanaï Baitahe,^{1,2} Naratip Vittayakorn,^{1,2} Rangson Muanghlua,³ Banjong Boonchom^{4,*}¹Electroceramic Research Laboratory, College of KMITL Nanotechnology, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520, Thailand²Advanced Materials Science Research Unit, Department of Chemistry, Faculty of Science, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520, Thailand³Department of Electronics Engineering, Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520, Thailand⁴ King Mongkut's Institute of Technology Ladkrabang, Chumphon Campus, 17/1 M. 6 PhaThiew District, Chumphon 86160, Thailand

* e-mail: kbbanjon@gmail.com

Abstract: Serrabrancaite ($\text{MnPO}_4 \cdot \text{H}_2\text{O}$) was rapidly and simply synthesized by using $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ and H_3PO_4 in acetone media at room temperature and atmospheric pressure. The thermal behavior of the prepared sample was investigated by thermogravimetric analysis and differential scanning calorimetry. Thermal decomposition of $\text{MnPO}_4 \cdot \text{H}_2\text{O}$ shows graph well-defined one step in the range of 200-300 °C which relates to the endothermic process of the elimination of water crystallization. The total mass loss is 10.79% which corresponds to the MnPO_4 anhydrous form. The prepared sample and its final decomposed product were characterized by X-ray diffraction, Fourier transform infrared spectroscopy and scanning electron microscopy.

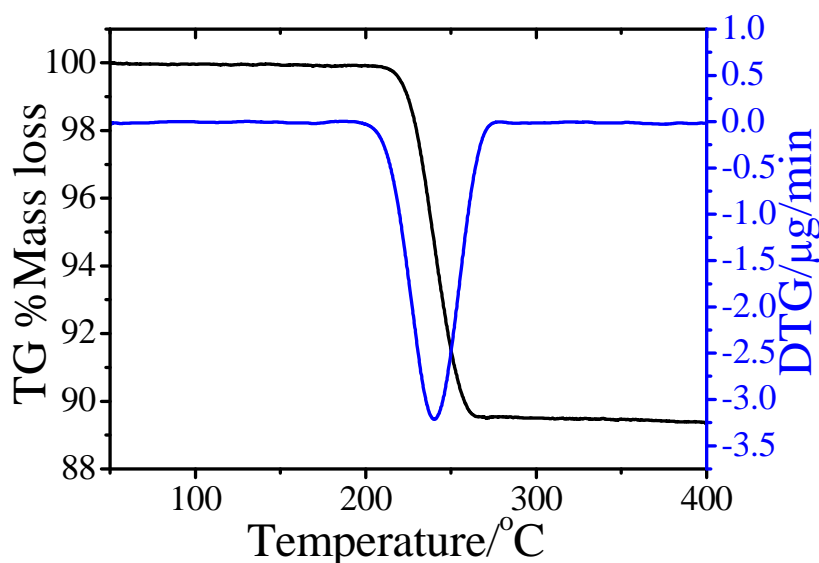


Figure 1. TG/DTG curves of $\text{MnPO}_4 \cdot \text{H}_2\text{O}$ at heating rate 10 °C/min

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