

Abstract Submitted
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Effect of Temperature and Particle Size On the Structure and Electrochemical Properties of Two-dimensional V_2O_5 Nanosheets.¹

CAMPBELL SAINT-VINCENT, Texas Lutheran University, CAROL LY, RANDALL ARCHER, RYAN MCFERON, CHRISTOPHER RHODES, Texas State University — Atomically thin two-dimensional nano materials exhibit unique features for charge storage including ultra high accessible surface area and the ability to better accommodate structural changes than bulk material. These two-dimensional materials potentially can provide charge storage with enhanced reversibility, capacity, rates and cycling. Analysis of the size and heat treatment of hydrated two-dimensional vanadium pentoxide ($V_2O_5 \cdot nH_2O$) was done to determine the effect on the electrochemical properties of the material. Characterization of $V_2O_5 \cdot nH_2O$ was done via x-ray diffraction, scanning electron microscopy, and Raman spectroscopy. Initial results of the electrochemistry suggest smaller two-dimensional particle size indicates better electrochemical performance.

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