

# The crunch-shaped $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ / rGO as a superior material for symmetric Na-ion system

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Due to  $\text{Na}_3\text{V}_2(\text{PO}_4)_3$  (NVP)'s high ionic conductivity, stable three-dimensional structure and high theoretical capacity, NVP is attracting much attention as cathode material of Na-ion system. However, NVP has poor electronic conductivity and it causes poor rate capability and cycle stability. The aim of this research is to form a composites of NVP/rGO (reduced graphene oxide) to further improve electronic conductivity and structural stability, thereby improving the rate capability and cycle stability. Graphene has the characteristics of excellent electronic conductivity, large surface area, which make graphene a suitable material for the conductive network. The crunch-shaped NVP/rGO composites were made by sol-gel method and ice templating method. Electrochemical tests show that NVP/rGO composites has much more excellent cycle stability and rate capability than pristine NVP. The results show that NVP/rGO can be considered as a candidate for cathode materials with high capacity and stability in hybrid Na-ion systems.

## References:

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