Characteristics of lithium vanadate cathode powders with fine size

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LiV_3O_8 is a promising cathode material in rechargeable lithium ion batteries. The advantages of LiV_3O_8 are (i) the large discharge capacity, (ii) the high rate capability and (iii) the good cycle characteristic. In recent years, LiV_3O_8 powders have been produced by various chemical and physical methods, e.g. sol-gel, hydrothermal reaction, efficient grinding and flame spray pyrolysis. All these methods lead to LiV_3O_8 powders with different shapes and morphologies, from spherical to rod-like. Spray pyrolysis had advantages in control of the composition and morphology of the cathode powders. In this study, the LiV_3O_8 cathode powders were prepared by spray pyrolysis. The morphological and electrochemical properties of the prepared LiV_3O_8 cathode powders post-treated at various temperatures were investigated.