Morphology  
Structure  
  
It can be seen that NCMT-2 maintains a reversible capacity of 104 mAh g-1 when cycled at 0.2 C rate , while the others show quite low capacities of less than 70 mAh g-1 after 100 cycles .   
  
Considering this unique charge distribution between the transition metal ions , it is intriguing to know how the low valence Co2+ in NCMT-2 contributes to the charge compensation during charge/discharge processes and whether it is reversible .   
  
The long-term cycling performance of NCMT-2 is not quite satisfactory , which could be improved through doping or decreasing the particle size .   
  
In the second charge process , the phase evolution behavior is in the same pathway as the initial charge , but no peak splitting is observed at the end of charge , implying good structure stability .