

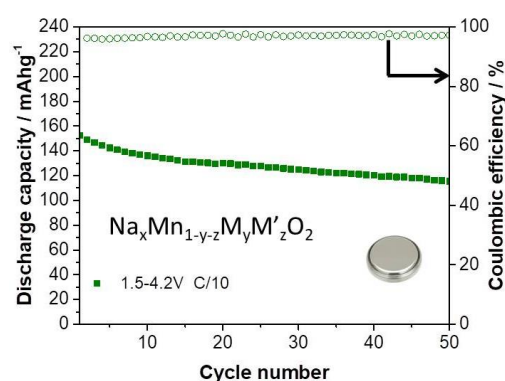
# POSITIVE ELECTRODE ACTIVE MATERIAL FOR SODIUM-ION BATTERIES

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Researchers at CIC energigUNE have developed a sodium-containing layer oxide with Mn-rich phase to be used as a cathode material or Na-ion secondary batteries, said positive electrode active material comprises a compound of formula  $\text{Na}_x\text{Mn}_{1-y-z}\text{M}_y\text{M}'_z\text{O}_2$  or a hydrate thereof, to a cathode containing said active material and to a rechargeable sodium-ion battery comprising said cathode.

Comparing to other materials having more significant substitutions of various transition metals into Mn containing layered oxides, which have demonstrated either to attain structural stability at an expense of specific capacity or to have a high specific capacity at a loss of structural stability, the positive electrode active material of the present invention attains vastly improved structural stability while retaining high specific capacity at low level of substitution, which illustrates the possibility of full utilization of maximum energy density with long term stability for layered oxide Na-ion battery cathode.



## ADDED VALUE

- Stable, even against water.
- Long term performance.
- High rate capability.

## APPLICATION OF THE TECHNOLOGY

- Stationary energy storage applications

## LICENSING CONTACT

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