Degradation Prediction Method for Lithium-Ion Battery for Railway Vehicle Considering Temperature Variation

Yoshiaki TAGUCHI Satoshi KADOWAKI Gaku YOSHIKAWA

Regarding the capacity degradation of lithium-ion battery, the Weibull-law-based long term prediction method has been studied. However, the use of this method has been limited to the case of a constant temperature. Therefore, we developed a method which allows us to vary temperature conditions, to lead to more practical prediction compared with the conventional method. We executed accelerated aging test with using two types of battery modules: one is used for traction, and another is used for control circuit for railway vehicle. The test results of both types demonstrated that the calculated values and measured values of battery capacity and inner resistance are in good agreement.