ABSTRACT

Efficient and reliable energy storage systems are crucial for our modern society. Lithium-ion batteries (LIBs) with excellent performance are widely used in portable electronics and electric vehicles (EVs), but frequent fires and explosions limit their further and more widespread applications. However, the fire risk and hazard associated with this type of high-energy battery has become a major safety concern for EVs. Thermal runaway or fire can occur as a result of extreme abuse conditions that may be the result of the faulty operation or traffic accidents. To provide a basis for fire safety systems to be applied to damaged EVs, hazards have been identified and means for preventing and controlling lithium-ion battery fires. This paper focuses on the fire-safety issues of EVs related to thermal runaway and fire in Li-ion batteries.