

### Electrochemical properties of gel electrolyte supported by nonwoven separators for Li-ion battery

Beta Zenia, 고장면\*  
한밭대학교  
(jmko@hanbat.ac.kr\*)

Nonwoven separators are regarded as highly porous membrane suitable for high performance battery due to its excellent ionic conductivity. This material is good candidate to accommodate gel electrolyte within its matrix to provide sufficient mechanical properties for practical battery assembly. Recently, lithium ion battery developments have paid attention on polymer electrolyte applied to portable electronic devices and hybrid electric vehicles due improved safety and performance of battery. In this study, poly(ethylene glycol) diacrylate (PEGDA)-based gel polymer electrolyte was prepared by thermal polymerization of an electrolyte solution containing benzoyl peroxide (BPO) as initiator and PEGDA for crosslinking. The results showed that the battery performances depend on the porous separator including nonwoven polyvinylidene fluoride (PVdF) and polyethylene terephthalate (PET) separators. Comparisons between PVdF and PET fibril separators coated with gel electrolyte have been done by means of impedance spectroscopy and charge/discharger. Details on the battery properties will be presented.