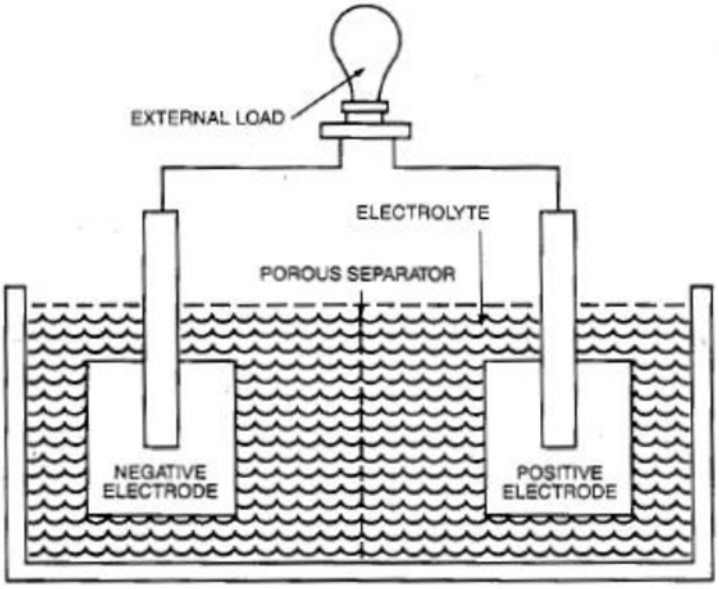
3.3 ELECTROLYTE AND SEPARATOR



The battery separator is an essential component of batteries that strongly affects their performance. The control of their properties being particularly important for obtaining lithium-ion batteries with high cycling performance. Separators are placed between both electrodes, should show high ionic conductivity, excellent mechanical and thermal stability.

Electrochemical performance of the batteries is highly dependent on the material, structure, and separators used. Most common separators are polypropylene (PP) monolayer and polypropylene/polyethylene/polypropylene (PP/PE/PP) trilayer.

The electrolyte is a lithium salt dissolved in an organic solvent. A liquid electrolyte acts as a conductive pathway for the movement of cations passing from the negative to the positive electrodes during discharge.

Recent advances in battery technology involve using a solid as the electrolyte material. The most promising of these are ceramics. The main benefit of solid electrolytes is that there is no risk of leaks, which is a serious safety issue for batteries with liquid electrolytes.

Coming soon... *Chapter 4 - Lithium ion cells construction*