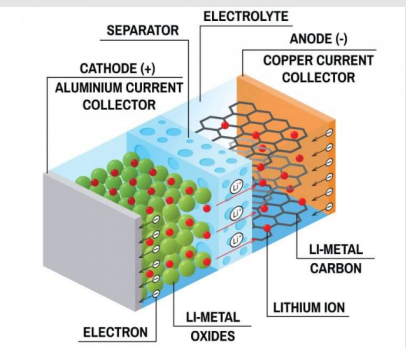
Battery separators of the future

How sepators work



Battery separators provide a barrier between the anode and the cathode while enabling the exchange of Li+ ions from one side to the other. Most of the times they are constitued by a micro-permeable polymeric film between with alumina particles embedded on the surface. The polymeric films, melts in case of battery overheating (120-150°C) so stopping the transport of ions, and effectively shutting the cell down.

Materials

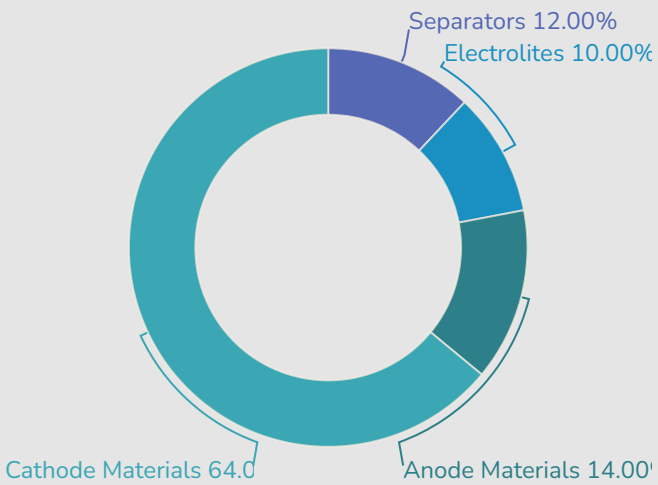
Polymeric Membrane
10-30 micron thickness, T resistance >120°C.
Co-laminated PE-PP, PET, PE, poly-N-Pyrrolinine

Ceramic Particles
Either as coating or membrane fillers.
Al_2O_3 (boehmite, nano alumina), SiO_2, TiO_2

Global players

Asahi Kasei · Entek · SK Innovation · SEMCORP · Teijin · Sumitomo · Ube · Jinxi New Material · Toray · Tycorun

The Market



19 Bn USD

Cathodes material is the important sector, BASF and Mitsubishi, are the technological leaders

30.1 Bn USD

Total global market for the 4 most important battery components

Advanced Energy Minerals