



## **Polymer Membranes for Post Li-ion Batteries**

Nowadays, electrical energy storage is one of the most critical issue to answer global warming by effectively replacing fossil energies by renewable ones. The Li-ion technology, widely studied and available on the market for multiple application is now reaching its limits and does not represent, alone, a viable option toward energetic transition. Therefore, the two options currently under study are the use of metallic lithium as anode and post Li-ion technologies. However, the problematics associated to the use of metallic lithium are many, such as dendrite growth and SEI instability in general. More in particular, in Li-Air technology, the reactivity of lithium with oxygen is problematic, and in Li-Sulfur technology the reactivity towards polysulfides. Therefore, one solution to enhance battery safety consist in protecting lithium by using solid electrolytes specifically tailored for each application. Another problematic associated to Li-Air technology is the use of ambient air as active material (instead of pure oxygen from a tank), a polymer membrane, able to let oxygen through while stopping other gases of the ambient atmosphere has also been studied.