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Challenges of Graphene Battery Commercialization

Abstract

Graphene is considered the most revolutionary, world-changing material since plastic. With the emergence of smart mobile devices (MD), electric vehicles (EV), grid and distributed energy (G&DE), sensors and Internet of Everything (IOE) the world is moving rapidly toward a more connected and more sustainable place. Graphene will play a key role to help transform many industries. We believe the success to of its commercialization for applications will depend largely on the availability of quality mass production and functionalization equipment.

All these advances hinge upon the development of next generation of energy storage technologies that can deliver high energy and power densities at a low cost (i.e. > \$350/kWh) and high safety. This talk will discuss the technical parameters and performance factors underlying the use of graphene-based technologies – which we feel presents a compelling performance upgrade for the replacement of conventional Li-ion batteries in use today for mission-critical, extreme-duty applications of battery systems. Graphene has emerged as important candidates for electrode materials in lithium-ion batteries (LIBs) due to their unique physical properties. A comparison on the current state-of-the-art and most recent advances in graphene-containing nanocomposite electrodes and their derivatives will be provided along with the synthetic routes of their electrochemical performance in LIBs will be discussed. More importantly, the issues of graphene relate to materials, electrode coating, safety for energy storage applications will be highlighted, with an emphasis on anode and cathode materials. Several directions for near future R&D will be discussed. AzTrong is a leading production equipment supplier of high quality functional GO/rGO (ink, powder, slurry, film) for various applications & solutions. We will share his experiences in graphene battery, graphene mass production as well as commercialization for energy storage and other applications.

Figures

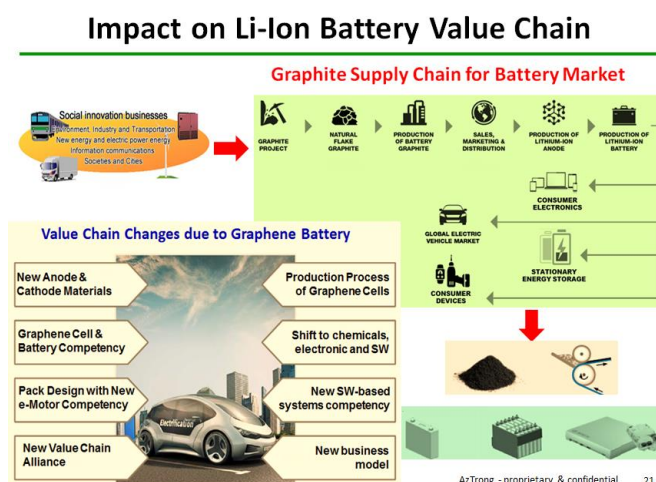


Figure 1: Transform the Li-Ion battery supply chain

