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## Review of recent developments in EV batteries recycling

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It is expected that the introduction of traction batteries for automobile industry will result in a big problem of huge waste pile of batteries in future. However it may be noted that the recycling technologies of the batteries in Electric Vehicles (EV), logistic concepts and the necessary legislative framework are not fully developed globally but are in the initial stages only. Currently the number of global EVs is expected to have crossed two million mark. If all countries of the world meet the Paris Climate Agreement targets the world will have about 140 million cars in future according to the estimate by International Energy Agency. Of all the EV battery technologies Lithium ion based batteries are the most developed and used globally in the EV industry. Hence status of recent developments and current processes in the recycling of Lithium ion based batteries is reviewed. Due to the increasing global demand for critical materials in the Spent Lithium Batteries (SLB) and the environmental demands on the impact of solid waste disposal the interest in the recycling of SLB is increasing. For obtaining either battery materials or individual compounds from waste SLB various studies have been carried out. The recycling of SLB requires economical and environmentally safe recovery of components like lithium, manganese, cobalt and nickel from the spent batteries. This is much of importance for countries with no reserves of these materials. Safe process design, purity of the recycling products and efficiency of production are the major requirements of the most desirable recycling process for SLB. Physical pretreatment is normally applied to SLB waste to sort different waste streams to effectively recover materials. The various developments in hydrometallurgical process used to recover pure materials and also the energy consumption in various processes are also reviewed.

### Biography

P Siva Prasad has awarded with PhD degree in Chemistry from IITM, India in 1979. He has 39 years global chemical industrial research experience and has worked in wide range of chemical process industries. He has specialized in electrochemical technologies, chemical formulations, polymer recycling, polymer coatings and geopolymer concrete. Currently he is focusing on development and recycling of batteries for electric vehicles. He is currently working at Chennai, India as a Senior Chemical Consultant.

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