Indigenous Lithium-ion batteries soon

By Umashankar Mishra

New Delhi, March 14 (India Science Wire): Lithium ion (Li-ion) batteries are widely used in various digital devices including mobile phones and its demand is increasing continuously. Presently, these batteries are imported leading to huge outgo of foreign exchange.

It is estimated that about one million lithium batteries are required in the country every month. They are imported from China, Japan and South Korea at a cost of around Rs. 200 per piece.

This situation is all set to change.

Scientists at the Council of Scientific and Industrial Research's Central Electrochemical Research Institute (CECRI) have developed an indigenous technology for the manufacture of the cells and have entered into a memorandum of understanding with a Chennai-based private firm, Enerrsto for large scale production.

The new lithium ion cells are significantly different from the cells that are presently available in the market. Both the cathode and anode in the battery are novel. The cathode is made of copper and magnesium co-doped lithium cobalt oxide. It has a capacity of 200 mAh/gm. The cathode in existing cells are made of only lithium cobalt oxide and their capacity is also only about 120 to 140 mAh/gm. For anode, the new battery uses flexible multi-wall carbon nano-tube instead of graphite.

Kuldeep Singh, a key member of the team that developed the battery, told India Science Wire that the new battery is also very safe. It uses ceramic coated cellulose paper instead of

polypropylene or polyethylene as the separator. Besides, its light weight.

It has been developed under CSIR’s network project 'Tapson'. The scientists have got a patent on the cathode material and the process of obtaining patents for its other components is underway. The entire project is being supervised by Tapson's coordinator Dr. S. Gopakumar.

The first prototype facility is being set up in Chennai. The battery is likely to be available commercially within one or two years,

The scientists are working on further improvement including changes in its fabrication technology without compromising the safety and performance of the lithium ion cell, so that cost can be reduced upto to Rs.100 a piece.

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