

LIB key patent analysis: LTO anode material, 2013 edition

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Abstracts

Emerging as a key component of EVs as well as small IT devices

Aiming at the ESS market in the future

With growing expectations for electric vehicles (EVs), there has been constant research to reduce charging time, which is one of main obstacles to EV adoption. Although the current condition for rapid charging is charging in about 30 minutes to approximately 80% of the battery capacity, but it is obviously necessary to shorten the charging time. LTO materials are one of key materials being developed to deal with this issue. That the automobile company Toyota is holding the largest number of LTO patents reflects this trend well.

This report provides in-depth analysis of LTO anode materials for LIBs. For this, total 1,106 validated patents have been selected from 9352 patents that have been issued until December, 2012 in Korea, the United States, Japan, and Europe. This is expected to be of use to look into the patent trend and key patents in the field of LTO anode materials.

As for patenting activities of each country, Japan and the United States have hold a majority, followed by Korea and Europe. As for the patent trend of major applicants, it is shown that battery and auto manufacturers such as Toshiba, LG Chem, Samsung SDI, Toyota Motor, and Panasonic have conducted active R&D. As for LTO material technologies, CEA, Hydro-Quebec, and Toho Titanium are holding a number of patents. Among university/research institutes, Chicago University, Korea Institute of Science and Technology, and, Tsinghua University have filed a lot of patents.

In particular, Toshiba as a company that succeeded in commercializing LTO as an anode material for the first time, holds a considerable number of patents with various applied patent portfolios. Among LTO particle manufacturers, Hydro-Quebec, Toho Titanium, and Altairnano have filed many patents on technologies for processing LTO particles as anode materials.

This LTO anode material: patent analysis??report provides analysis of key patents, technology flow charts, and key patent summaries of each applicant based on the selected key patents on LTO anode materials. In particular, it includes patent trends of a MoOx anode material, which is being developed by Sanyo to compete with LTO

The report has strong points as follows:

Analysis of each global top applicant

Technology flowcharts to comprehend the LTO anode development trend
Detailed analysis of key patents

Analysis of summaries of other key patents

Analysis of trends in LIB technology transfer and disputes

Analysis of patents on MoOx materials

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