

附件四、技術說明表



新型鋰離子電池正極材料回收製程

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市場及需求：

電池正極材料為一種適用於電動車長期穩定使用之材料，本技術係關於一種合成鋰離子電池正極材料之新型回收技術。與傳統電池技術相比，鋰離子電池充電速度更快、使用更持久，並且具有更高的功率密度，能以輕巧的體積提供更長效的電池續航力。本技術可回收製備鋰離子電池正極材料，可經過特殊製程可有效減少正極材料阻抗，並使鋰電池恢復快充放電能力。

技術摘要(含成果)：

本技術係一種鋰離子電池正極材料添加特殊螯合劑之回收技術，可有效減少廢正極材料之阻抗，及恢復其充放電能力，此類回收材料可應用於大容量鋰離子電池及儲電系統中。

優勢：

本技術可回收製備高安全性之鋰離子電池正極材料，透過本新型技術可有效減少正極材料阻抗及電阻，及恢復其充放電能力。

競爭產品：

與本技術競爭產品為傳統廢鋰離子正極材料。因既往製備所製備之鋰離子電池衰退後，材料導電度不足，故無法進行充放電反應，使鋰電池發展受到限制。

專利現況：

- (1)本技術將申請中華民國專利。
- (2)本技術團隊教授具有研究陶瓷材料二十年以上經驗。
- (3)本研究團隊具有十年以上研究螢光材料經驗。
- (4)本技術團隊教授為本校特聘教授，並獲得多次國科會傑出研究獎。

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New recycling process for cathode materials in lithium-ion batteries

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Market Needs:

Compared to traditional battery technology, lithium-ion batteries can be charge faster, long-term use, and higher power density, and provide longer-lasting battery life in a lightweight package. The technology is related to recycle cathode materials of lithium-ion battery which are suitable for long-term stable use of electric vehicles. This technology recycles the cathode materials of lithium-ion battery using a new technology to increase the capacity and reduce the impedance. Therefore, the charge/discharge of spent lithium-ion batteries can be greatly enhanced.

Our Technology:

The present technology is related to a new kind of technology using new chelating agent to recover the cathode materials in the lithium-ion batteries. This type of lithium-ion batteries can be used in the large capacity batteries and the energy storage system.

Strength:

This technology uses new methods to recover the lithium-ion batteries with high capacity. This technology can reduce the impedance and resistance of cathode materials and increase the charge/discharge capacity.

Competing Products:

The capacity of spent cathode materials is insufficient. Therefore, the usage of spent lithium-ion batteries is limited.

Intellectual Properties:

- (1) This technology will be filed as a patent in our country.
- (2) The professor in the research team has studied ceramic materials for more than twenty years.
- (3) The research team has studied phosphors materials for more than ten years.
- (4) The professor in the research team is a distinguished professor at NTU, and has obtained many rewards from NSC.

Contact (do not need to fill out):

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