

Development of Innovative Recycling of Lithium Battery

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Abstract

Countries are paying more and more attention on conserving the environment and energy in recent years, due to the issues of rising oil price, the energy shortage and the gradually prevailing concept of circular economy. In order to cope with the wave of energy saving and carbon reduction, the automobile industry is gradually transforming, and electric vehicles have become a trend to replace fuel vehicles.

Based on relevant data, the global sales of electric vehicles was 2.21 million units in 2019, and the capacity of lithium battery devices in terms of energy storage was 8,453.9 megawatts, accounting for 88.8% of the total electrochemical energy storage. The demand for lithium batteries has gradually increased because of the hot sales of electric vehicles and the rise of the energy storage market. The quantity of waste lithium batteries is expected to grow since the related products go out of use. If the waste lithium batteries are not properly recycled, they will cause environmental pollution.

In addition, according to the International Energy Agency's forecast, the total number of electric vehicles will reach 140 to 245 million units, and the estimated demand for cobalt in lithium batteries is 180,000 metric tons, 180,000 metric tons of lithium, 177,000 metric tons of manganese and 925,000 metric tons of nickel in 2030. This article also organizes the domestic and the international lithium battery recycling technology and related cases. Discusses the lithium battery recycling from the perspective of circular economy.