

Extraction of rare metals for new energy batteries

What is the first process to reuse rare earth metals from hydride batteries?

Honda established world's first process to reuse rare earth metals extracted from nickel-metal hydride batteries for hybrid vehicles Honda Motor Co., Ltd. Web page(2013) Google Scholar W.N.Smith, S.Swoffer Process for the recovery of metals from used nickel/metal hydride batteries U.S. Patent No., 8(246)(2012), p. 717 Google Scholar

How are Rees extracted from NiMH batteries?

Yun et al. studied REE extraction from spent NiMH batteries using acid leaching and extraction with a primary amine extractant of N1923. Results showed that 99.98% of REEs were extracted after a five-stage counter-current extraction followed by HCl stripping and oxalic precipitation.

What are the most valuable co-products recovered by recycling batteries?

Based on revenue potential per unit mass, didymium (Nd+Pr) metal and high-grade nickel metal are the two most valuable co-products which are recovered via recycling of the batteries. Despite comprising less than 1% of the total recovered materials by mass, didymium generates over 14% of the total potential revenue from all products recovered.

What is valorization of waste NiMH battery?

Valorization of waste NiMH battery through recovery of critical rare earth metal: a simple recycling process for the circular economy

Can rare earth elements be recycled?

This review explores the potential of separating and recycling rare earth elements (REEs) from different energy conversion systems, such as wind turbines, electric vehicles batteries, or lighting devices. The REEs include 17 elements (with global production of 242 kilometric tons in 2020) that can be found abundantly in nature.

Who invented the re-use of rare earth metals from nickel-metal hydride batteries?

L.Honda Motor Co Honda established world's first process to reuse rare earth metals extracted from nickel-metal hydride batteries for hybrid vehicles Honda Motor Co.,Ltd. Web page(2013) Google Scholar

In the current research, selective sulfation roasting combined with a water leaching route is investigated for the extraction of rare earth metals (REMs) from waste NiMH ...

This report considers a wide range of minerals and metals used in clean energy technologies, including chromium, copper, major battery metals (lithium, nickel, cobalt, manganese and ...

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Here, we present a distinctive approach for recycling spent LiFePO₄ batteries ...

Besides the four rare earths used most commonly in magnets (neodymium, praseodymium, dysprosium, and terbium), Phoenix recovers battery metals, platinum group ...

The social and environmental complexities of extracting energy transition metals. ... Handbook on Rare Earth Metals ... J. Lithium Process Chemistry: Resources, ...

Rare earth metals are not as rare as their name suggests. However, they are indispensable for the modern economy. After all, these 17 metals are essential raw materials ...

Permanent magnets, lighting phosphors, and nickel-metal hydride (NiMH) ...

Lithium ion batteries (LIBs) are commonly used in small mobile devices, medium-sized electronic devices and large electric or hybrid vehicles due to their high specific ...

Recycling methods for rare metals in waste Li-ion batteries were briefly explained. Advantages, disadvantages, and outlooks for each recycling technology were outlined. Influence of impurities in cathode active materials ...

"The argument could be made that, with the clean energy transition, we're exchanging a fossil fuel-based energy system with a metals-based energy system," says Scott ...

Here, we present a distinctive approach for recycling spent LiFePO₄ batteries at room temperature, where water is the only leaching agent consumed. FePO₄ and lithium ...

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Zhi and colleagues [118] developed a new extraction-precipitation method using dibenzyl phosphate (DBP) to recover REEs from waste NiMHs. By adding DBP to the sulfuric ...

This study put emphasis on developing an innovative and sustainable process for the urban mining of rare

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earth elements from waste electrical and electronic equipment, in ...

Scientists have developed a new method of combatting climate change while enhancing green technology for environmental use. They are using bacteria to assist in the extraction of rare metals, highlighting that without ...

Recycling relieves the pressure on primary supply. For bulk metals, recycling practices are well established, but this is not yet the case for many energy transition metals such as lithium and ...

Foreword from the Secretary of State for Business, Energy and Industrial Strategy. Almost every part of modern daily life relies on minerals, often mined thousands of miles away.

Web: <https://centrifugalslurrypump.es>