

What is a direct desulfurizer for lead paste?

NaOH was used as the direct desulfurizer for lead paste, and lime was used to regenerate NaOH from the mother liquor at sufficient concentrations for desulfurization.

How to desulfurize lead paste by regenerated alkali?

The desulfurization of lead paste by regenerated alkali was as follows: (i) desulfurization was conducted by adding waste lead paste to a beaker containing a certain volume of regenerated NaOH solution and stirred. (ii) After the desulfurization reaction was complete, filter residue and filtrate were obtained by vacuum filtration.

How much desulfurizer is required for sodium-calcium double alkali lead paste slurry?

Hence, based on the minimum specific gravity of industrial lead paste slurry, the concentration of desulfurizer required for sodium-calcium double alkali lead paste desulfurization was estimated to be at least 2.32 mol/L.

3.2. Mechanism of a novel process of lead paste pre-desulfurization

How does sodium-calcium double-alkali lead paste pre-desulfurization work?

The new sodium-calcium double-alkali lead paste pre-desulfurization process proposed in this paper involved the direct reaction of lead paste with NaOH solution. Relatively cheap lime was reacted with the mother liquor, the sodium sulfate produced by desulfurization, to regenerate NaOH.

Can Na-Ca double alkali pre-desulfurization recover lead from spent lead paste?

In summary, the Na-Ca double alkali pre-desulfurization process can successfully recover lead from spent lead paste in an environmentally sustainable manner, minimize the disposal of hazardous solid waste, and prevent the emission of harmful gases.

Is the pre-desulfurization process for lead paste economically feasible?

Thus, the proposed pre-desulfurization process for lead paste using the Na-Ca double alkali method is economically feasible in industrial applications. A pilot-scale experiment would be necessary to predict the economic benefit more precisely for future large-scale industrial application.

Desulfation in Lead-acid Batteries; a Novel (resistive) Approach: A major life-limiting problem with lead-acid batteries is that when discharged (partially or otherwise) the resulting lead-sulfate slowly transforms into an insoluble form ...

In this paper, Figure 1a,b shows the desulfation process of spent lead paste ...

DOI: 10.1016/j.wasman.2015.03.010 Corpus ID: 19616211; Recovery of lead from lead paste in spent lead acid battery by hydrometallurgical desulfurization and vacuum thermal reduction.

Lead-acid battery desulfurization chip

This paper reports a new method of direct recovery of highly pure lead oxide ...

Recycling of spent lead-acid batteries (LABs) is extremely urgent in view of environmental protection and resources reuse. The current challenge is to reduce high ...

Herein, a novel electrochemical spent lead-acid battery recycling approach ...

In this paper, a novel approach to recover lead oxide from spent lead acid ...

A typical lead acid battery cell has two plate types, one of lead and one of lead dioxide, both in contact with the sulfuric acid electrolyte as either a liquid, absorbed in a mat (AGM), or a gel. ...

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To address this problem, we designed a new desulfurization process of ...

This paper reports a new method of direct recovery of highly pure lead oxide (PbO) from waste lead pastes and lead grids of spent lead-acid batteries via catalytic ...

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This battery desulfation method involves cracking the battery open, using a syringe to drain some of the lead-acid, replacing the removed acid with a saturated solution of Epsom salts and distilled water, hooking up to a charger ...

In this paper, Figure 1a,b shows the desulfation process of spent lead paste and (NH 4) 2 CO 3 and the sulfidation process of (NH 4) 2 SO 4 mother liquor and Ca(OH) 2 ...

methods and desulfurization repair methods for repairable failure types. Lead-acid batteries have the advantages of working under high-current discharge conditions, abundant ... The internal ...

In this paper, a novel approach to recover lead oxide from spent lead acid batteries by desulfurization and crystallization in sodium hydroxide solution after sulfation was ...

Pulse charging can knock down the sulfation in lead acid batteries, however I have so far never seen a battery in sulfated condition which comes back convincingly. ...

Herein, a novel electrochemical spent lead-acid battery recycling approach with ultra-low energy consumption is proposed in this work, which is achieved via coprocessing ...

A sulfated battery has a buildup of lead sulfate crystals and is the number one cause of early battery failure in

lead-acid batteries. The damage caused by battery sulfation is ...

A car battery is made up of lead plates, surrounded by a solution called an electrolyte (a mixture of sulphuric acid and distilled water). When a battery is discharged some of the lead (Pb) in ...

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