Lead-acid battery waste lead paste composition

What is the recycling of waste lead paste?
The recycling of waste lead paste is primarily focused on using Pb metal as the final product and returning it to the industrial chain of Pb as the lead ingot. More than 80% of refined lead consumption worldwide is concentrated in the lead-acid storage battery industry.

What are the components of spent lead acid battery?
There are four main components in spent lead acid battery: polymeric containers,lead alloy grids,waste acids and pastes. Among them,the pastes mainly comprise lead oxide (~9%),lead dioxide (~28%),lead sulfate (~60%) and a small amount of lead (~3%) (Zhu et al.,2012a).

Is waste lead paste a target material?
Lead in the waste LABs is mainly distributed in the grid and lead paste. Lead paste contains about 79% of lead,which accounted for about 35% of the total Pb mass of the waste LABs ,,. Thus,waste lead paste has been regarded as the target materialsin the perspectives of compensation for lead consumption.

How to recover lead from lead paste in spent lead acid battery?
Ma,Y.-J.; Qiu,K.-Q. Recovery of lead from lead paste in spent lead acid battery by hydrometallurgical desulfurization and vacuum thermal reduction. Waste Manag. 2015,40,151-156.

What is the chemical composition of lead paste?
Table 1 presents the main chemical composition and Pb phase composition of the raw material,respectively. The relative contents of Pb,S,O,Si and Sb are 75.89%,6.16%,16.10%,0.62% and 0.09%,respectively. PbSO 4 and PbO 2are the main phases in the lead paste,which have the contents of 33.56% and 40.86%,respectively (Table. 1).

What is the metallurgical recycling process for lead-acid batteries?
In the hydrometallurgical recycling processfor lead-acid batteries,there are three desulphurization processes of lead pastes with oxalate,carbonate,and alkaline solutions. The desulphurized lead products (i.e.,lead oxalate,lead hydroxide,and lead carbonate) are then smelted to produce lead ingots.

In most countries, nowadays, used lead-acid batteries are returned for lead recycling. However, considering that a normal battery also contains sulfuric acid and several kinds of plastics, the recycling process may be a potentially dangerous process if not properly controlled.

Lead sulfate, lead oxides and lead metal are the main component of lead paste in spent lead acid battery. When lead sulfate was desulfurized and transformed into lead carbonate by sodium carbonate, lead metal and lead oxides remained unchanged. Lead carbonate is easily decomposed to lead oxide and carbon dioxide under

high temperature.

At the same time, the influence of working temperature, current density and electrolyte composition on the direct reduction of waste lead paste was studied in detail to ...

Recycling lead from spent lead-acid batteries has been demonstrated to be of paramount significance for both economic expansion and environmental preservation. ...

The recovery of lead from spent lead acid battery paste (SLP) is not only related to the sustainable development of the lead industry, but also to the sustainable evolution environment. An innovative process is proposed for the recovery of high purity metallic lead from spent lead acid battery paste (SLP) by electrodeposition at 333-353 K in choline chloride-urea ...

In lead pastes, the dominant component is lead sulfate (PbSO 4, mineral name anglesite) and lead oxide sulfate (PbOoPbSO 4, mineral name lanarkite), which accounts for more than 60% of lead pastes. In the recycling process for lead-acid batteries, the desulphurization of lead sulfate is the key part to the overall process.

Waste lead paste containing approximately 72-75% lead is difficult to recycle and dispose of because of its complicated composition. Pollution control in the recycling and disposal of spent LABs is a key challenge and a research hotspot for scientific researchers.

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The growing of collected waste lead-acid batteryLead-Acid Battery (LAB) quantity means the growing demand for secondary lead (Pb) material for car batteries, both needed for increased cars& #8217; production and for replacing of ...

At the same time, the influence of working temperature, current density and electrolyte composition on the direct reduction of waste lead paste was studied in detail to achieve the optimal condition in terms of lead recovery ratio, desulphurization rate, cathode current efficiency and specific energy consumption.

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The paste from dismemberment of discarded lead-acid batteries contains mostly lead sulphate and lead oxide. Both can be solubilized with high yielding sodium hydroxide, the ...

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INTRODUCTION 1. In most countries, nowadays, used lead-acid batteries are returned for lead recycling. However, considering that a normal battery also contains sulfuric acid and several kinds of plastics,

30-40 wt% waste lead paste, 24-30 wt% lead alloy grid and binding post, 22-30 wt% organic materials such as plastics, and 11-30 wt% electrolytes [7, 8]. Waste lead paste contain-ing approximately 72-75% lead is dicult to recycle and dispose of because of its complicated composition. Pollution control in the recycling and disposal of ...

In your waste consignment note you must describe waste lead acid batteries that may contain POPs as "containing POPs". You should list the following additional chemicals in the composition ...

for Lead Acid Paste Efficient Environmentally friendly Low maintenance TECHNICAL CHEMICALS. 2 Sophisticated technology for the efficient and economical preparation of lead acid paste - which also takes account of environmental interests - is vital to attain the high standards of quality imposed on battery systems. For several decades now, EIRICH has been supplying ...

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