Battery slag production calcium carbonate process

Corpus ID: 33812511; Production of calcium carbonate from steelmaking slag and captured CO2-optimisation of the carbonation process and product quality

In this paper X2PCC (Calcium containing material X to Precipitated Calcium Carbonate) process wherein a steelmaking slag is used as a source of Ca for mineral carbonation of CO2 was studied.

Download Citation | Experimental study on indirect mineral carbonation using five types of slag for production of high-purity calcium carbonate | Mineral carbonation is one of the known methods ...

Aalto University, P.O. BOX 11000, 00076 AALTO Abstract of master"s thesis Author Obdulia Natalia Martínez Miras Title of thesis Pilot-scale Experimental Work on Sustainable Process Method of Production of Precipitated Calcium Carbonate from Steel Slag and Carbon Dioxide

Preparation of vanadyl sulfate electrolyte for vanadium flow battery from vanadium slag using calcium salt precipitation, sodium carbonate leaching and solvent extraction ... The recovery of vanadium in the whole process from vanadium slag to vanadium product is up to 91.4%. ... discharged during the Bayer alumina production ...

DOI: 10.1016/J.JCOU.2016.02.004 Corpus ID: 101035038; Case study for production of calcium carbonate from carbon dioxide in flue gases and steelmaking slag @article{Teir2016CaseSF, title={Case study for production of calcium carbonate from carbon dioxide in flue gases and steelmaking slag}, author={Sebastian Teir and Tuukka ...

This process provides a potential path for the resource treatment of industrial solid wastes such as calcium carbide slag and desulfurization gypsum. ... carbonate production for the replacement ...

DOI: 10.1016/J.JCLEPRO.2014.05.064 Corpus ID: 153882411; Cradle-to-gate life cycle assessment of precipitated calcium carbonate production from steel converter slag @article{Mattila2014CradletogateLC, title={Cradle-to-gate life cycle assessment of precipitated calcium carbonate production from steel converter slag}, author={Hannu ...

The preparation of calcium carbonate from carbide slag can realize the high value-added utilization of carbide slag . As an important fine chemical product, calcium carbonate is widely used. Limestone ore is used as a raw material in the carbonization process for the production of calcium carbonate at the industrial level.

Production of papermaking grade calcium carbonate from steelmaking slag - product quality and development of a larger scale process . Hannu-Petteri Mattila. 1, Inga Grigali?nait?. 1,2, Arshe ...

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The objective of this study is to describe primary lithium production and to summarize the methods for combined mechanical and hydrometallurgical recycling of lithium-ion batteries (LIBs). This study also aims to draw attention to the problem of lithium losses, which occur in individual recycling steps. The first step of hydrometallurgical ...

An alternative production concept for calcium carbonate production is being developed that omits the need for fresh limestone and its calcination (Eloneva et al., 2009). This concept has the potential to ...

Mattila, H-P, Hudd, H & Zevenhoven, R 2014, " Cradle-to-gate life cycle assessment of precipitated calcium carbonate production from steel converter slag ", Journal of Cleaner Production, vol. 84, pp. 611-618.

The process captures CO 2 directly from a gas stream and transforms it to solid calcium carbonate. The dependence of the Ca ...

Design of a continuous process setup for precipitated calcium carbonate production from steel converter slag. ... To limit the amount of impurities in the process, the slag-to-liquid ratio should remain below a certain value, which depends on the slag composition. Also, the design of a continuous test setup (total volume ~75 L) is ...

By carbon dioxide mineralization, CO2 can be stored safely and leakage-free for very long times. Owing to their high calcium content, steelmaking slags are suitable for mineral carbonation. In a country like Finland, where no suitable geological formations for CO2 storage seem to exist, steelmaking slag carbonation offers an ...

Currently there are three conventional methods of PCC production which are the carbonation process, the lime-soda process and the calcium chloride-sodium carbonate double salt decomposition process [17]. In the carbonation process, carbon dioxide containing gas is bubbled through a calcium hydroxide slurry producing calcium ...

It was well known that carbide slag is the byproduct of the production of acetylene using calcium carbide and its main ingredients were Ca(OH) 2 and CaCO 3. 50, 51 As the main component of carbide ...

Production of precipitated calcium carbonate (PCC) from steelmaking slag for fixation of CO2 ... Since the calcium content of the steelmaking slag is high, a calcium carbonate precipitate can be produced with the ...

improve the design of precipitated calcium carbonate (PCC) production processes and increase the economic value of their ... Although the properties of steelmaking slag depend on the manufacturing process, iron ore and limestone, it contains sufficient amounts of Ca and Mg, and impu-rities such as Fe, Al, and Si in oxide form [, 9]. The 8

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In this paper, three examples are described: the production of precipitated calcium carbonate (PCC) from steelmaking slags, the fixation of carbon dioxide (CO2) from blast furnace top gas into ...

Request PDF | On Dec 1, 2013, Arshe Said and others published Production of precipitated calcium carbonate (PCC) from steelmaking slag for fixation of CO2 | Find, read and cite all the research ...

A mineral carbonation process "slag2PCC" for carbon capture, utilization, and storage is discussed. Ca is extracted from steel slag by an ammonium salt solvent and carbonated with gaseous CO2 after the separation of the residual slag. The solvent is reused after regeneration. The effects of slag properties such as the content of free lime, fractions of ...

Precipitated calcium carbonate, a widely used filler material, is nowadays mainly produced by the so-called carbonation process. Natural limestone is first calcined and then contacted with carbon ...

In this work, experiments were performed to determine the filterability of calcium carbonate produced with an alternative calcium carbonate production ...

The indirect mineral carbonation of industrial residues is one of the potential technologies for CO 2 sequestration. In this paper, the leaching and carbonation of electric arc furnace (EAF) slag ...

Pilot-scale Experimental Work on Sustainable Process Method of Production of Precipitated Calcium Carbonate from Steel Slag and Carbon Dioxide Final Project Department of Energy Engineering and Environmental Protection School of Engineering, Aalto University Espoo, 2nd May 2016 Supervisor: Professor Mika Järvinen (Aalto ...

Combined with the experimental and simulation results, the main components of the leaching residue were calcium carbonate, some insoluble silica and carbon residue. Due to the high content of calcium carbonate, the leaching residue could be used as raw material to calcine calcium carbide and returned to the calcium carbide ...

Semantic Scholar extracted view of "Calcium extraction from steelmaking slag and production of precipitated calcium carbonate from calcium oxide for carbon dioxide fixation" by Sang Moon Lee et al. ... The experimental results show that the main reactive calcium-containing phase in the EAF slag carbonation process is calcium ...

The production of precipitated calcium carbonate, PCC, by a semicontinuous process of slaked lime carbonation was performed in a bench-scale ...

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