Solar container material phosphogypsum

What is phosphogypsum made of?
Phosphogypsum (PG) is the calcium sulfate hydrate formed as a by-product of the production of fertilizer, particularly phosphoric acid, from phosphate rock. It is mainly composed of gypsum (CaSO4 · 2 H2O).

Can phosphogypsum be used as a filling material?
Using phosphogypsum as raw material,it is calcinated at a high temperature to produce anhydrous gypsum (also called anhydrite),which has excellent performanceas a cementing material or polymer filling material.

Why is phosphogypsum stacked in landfills?
Billions of tons of Phosphogypsum (PG) are stacked in landfills as a by-product of the phosphoric acid production industry. PG properties and characteristics vary in every region. Evaluation of various treatments for PG purification. PG utilization in various applications to enhance its environmental impact.

Why is phosphogypsum not used in construction?
Although gypsum is a widely used material in the construction industry,phosphogypsum is usually not used,but is stored indefinitely because of its weak radioactivitycaused by the presence of naturally occurring uranium (U) and thorium (Th),and their daughter isotopes radium (Ra),radon (Rn) and polonium (Po).

What is phosphogypsum (PG)?
Phosphogypsum (PG) is the primary byproduct generated during the production of phosphoric acid,an intermediate product in phosphate fertilizer production,from calcium phosphate (apatite) ore.

How does phosphogypsum affect the environment?
Phosphogypsum may pollute the environment by its phosphorus content causing eutrophication,by its toxic heavy metal content,and by its radioactivity. PG releases radon,which can accumulate indoors if used as a construction material.

In order to avoid additional GHG emission from thermal treatment of PG, a novel approach of using solar radiation was adopted for generation of thermal energy. The objective of the ...

Building upon these foundations, this study selected phosphogypsum rich in sulfate, combined with pozzolanic and alkaline solid waste materials, to prepare phosphogypsum-based full ...

Phosphogypsum, a waste residue generated during the production of phosphoric acid, currently suffers from low utilization rates. To address this issue, this study utilized response ...

A promising application is in the passive energy-saving buildings, where PG is prepared as matrix material and coupled with phase change materials to fabricate composite building ...

Phosphogypsum can be used for mine filling, ecological restoration materials, road construction materials, soil conditioning agent, cement retarder, etc., the comprehensive utilization ...

2.1 First, Building Materials 59 2.2 Secondly, Anhydrous Gypsum as Cementing Material 59 2.3 Thirdly, Project 1468 - Sulphuric Acid Recovery and Cement Co-production 59 3. Conclusion 59 SECTION B: ...

Phosphogypsum (PG) is an industrial hazardous waste product discharged during wet-process phosphoric acid production. Once crystallized, the byproduct PG is filtered and separated from the ...

As a result, many studies have focused on using fiber-reinforced materials to enhance its properties. The addition of reinforcing materials, such as glass fibers, steel fibers, carbon fibers, ...

Cemented backfill is an effective means to increase ore recovery, improve safety conditions, and reduce surface disposal of solid wastes. As a typical solid waste, phosphogypsum ...

A Gazdasági Versenyhivatal (GVH) vizsgálatot indított az EU- SOLAR Nyrt.-vel szemben, amiért megtévesztoen ígérheti a lakossági napelem-pályázatok költségmentes ...

If successful, direct leaching approaches could limit the radioactivity of PG considerably and thus make the material available as a secondary raw material in construction. ...

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To this end, in this work, we propose a novel valorization pathway for PG as an energy storage material and in this context, present a study on its use as a matrix material for paraffin ...

AbstractThe extensive accumulation of phosphogypsum (PG) poses significant environmental challenges, necessitating its efficient utilization. This study investigated the mechanical ...

The first method is based on the heating of a material (charging process when solar energy is available) and its cooling (unloading process when energy is required) without phase change.

Phosphogypsum (PG) is a major hazardous by-product of the phosphate industry. The whole world is facing the challenge of increasing stockpiles of PG, which significantly affect ...

Summary: Phosphogypsum is an industrial waste that causes environmental problems and is mainly used for producing building materials. However, the mechanical strength and water resistance of ...

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Request PDF | On Jan 1, 2022, Dongdong Xu and others published Preparation of Composite Microencapsulated Phase Change Material Based on Phosphogypsum for Passive Building ...

Phosphogypsum (PG) is a by-product produced during the wet process of phosphoric acid (H 3 PO 4) production from natural phosphate rocks. Approximately 4-6 tons of PG is produced ...

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