

120-foot solar-powered container used by a cement plant in the Bahamas





Overview

This work describes the implementation of concentrated solar energy for the calcination process in cement production. Approach used for providing solar energy includes the utilisation of a solar tower sy.

Can a solar power system save CO₂ in cement industry?

Concentrated solar power system is designed for cement industry. Substitution of required thermal energy ranging from 100% to 50% is studied. 7600 heliostats with 570 ha land required for 50% conventional energy replacement with solar energy. Selected conventional cement plant could save 419 thousand tons of CO₂ annually.

Can solar clinker be used for cement production?

For the first time ever, CEMEX and Synhelion successfully connected the clinker production process with the Synhelion solar receiver, producing solar clinker. This revolutionary innovation is an initial step to develop fully solar-driven cement plants.

Which cement plant is used for solar thermal application?

Location and DNI availability of the investigated plant A conventional cement plant (Kotputli Cement Works (KCW), an UltraTech Cement Limited manufacturing unit) at Kotputli, Jaipur, Rajasthan, was investigated for solar thermal application.

How a solar cement plant is designed?

Solar cement plant was designed based on cement production and the Direct Normal Irradiation (DNI) data available at plant location. Total thermal energy and the amount of land needed for the solar cement factory were analysed. Additionally, total mirror surface, number of heliostats, and land requirement are estimated.



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Design of solar cement plant for supplying thermal energy in cement

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CO2 pollution capture and removal from thermal and cement ...

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An innovative and efficient solar power plant solution has been developed for cement factories.



On an annual basis, solar PV systems in cement plants ...

Greening the Concrete Jungle: Solarizing Cement Factories

An innovative and efficient solar power plant solution has been developed for cement factories. On an annual basis, solar PV systems in cement plants may save 22,941 tonnes of CO₂.

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