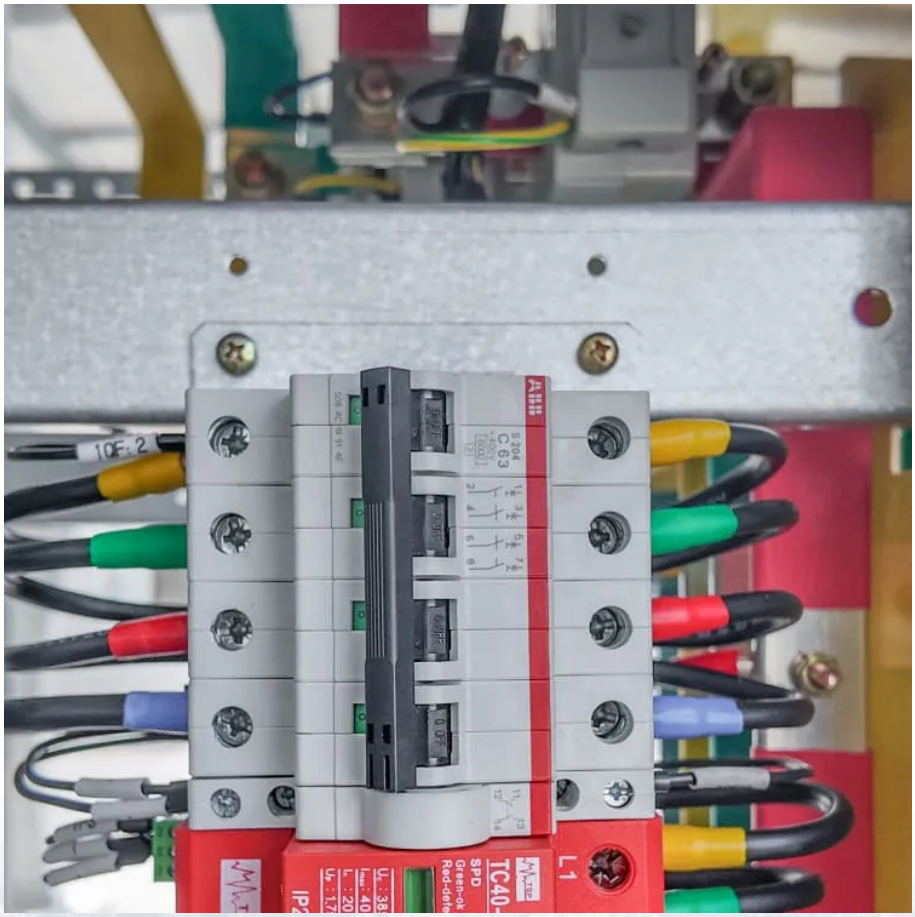
IMK CONTAINERS

High-Temperature Resistant Solar Containers for Oil Refineries



Overview

The purpose of this study is to investigate the potential use of solar energy within an oil refinery to reduce its fossil fuel consumption and greenhouse gas emissions. A validated ASPEN HYSYS model w.

Can a TRNSYS solar heating system be used in a refinery?

Using TRNSYS software, the proposed Parabolic Trough Collector (PTC)-based solar heating system paired with the boiler is modelled. Sensible thermal energy storage (TES) system is integrated into the refinery's process heating to handle the intermittent nature of solar energy.

Can a high-temperature solar tower integrated system power a petrochemical refinery?

Green hydrogen and power produc-tion using a high-temperature solar tower integrated system have been previously investigated but not in the con-text of a petrochemical refinery. Hydrogen is a significant raw material in petrochemical hydrogenation process (e.g., hydrocracking, hydrotreating), whereas steam has multiple uses within a refinery.

Can solar-assisted petrochemical refineries greenize oil refineries?

This paper proposes a solar-assisted method for a petrochemical refinery, considering hydrogen production deployed in Yanbu, Saudi Arabia, as a case study to greenize oil refineries.

Can solar energy be used in oil refineries?

Hydrogen is a significant raw material in petrochemical hydrogenation process (e.g., hydrocracking, hydrotreating), whereas steam has multiple uses within a refinery. Other studies on solar-thermal-assisted refineries are sum-marized here as follows. In Absi Halabi et al. , the application of solar energy in the oil industry is reviewed.

High-Temperature Resistant Solar Containers for Oil Refineries

Concentrated solar power integration with refinery process ...

They concluded that solar thermal-based or supplemented steam systems for oil recovery appear to be a preferred choice, or complement, to completely conventional natural ...

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Using concentrated solar power for crude oil ...

This leads to a higher potential CO2 reduction of up to 17%. Conclusion: opportunities for solar heat integration in refineries All findings point out the tremendous potential of high-temperature heat integration, in ...

Development of a Solar Power Plant for Heating an Oil Pipeline for High

The goal of the research is to develop a solar power plant for heating an oil pipeline for high-temperature climatic conditions. The object of study is a solar power plant. ...

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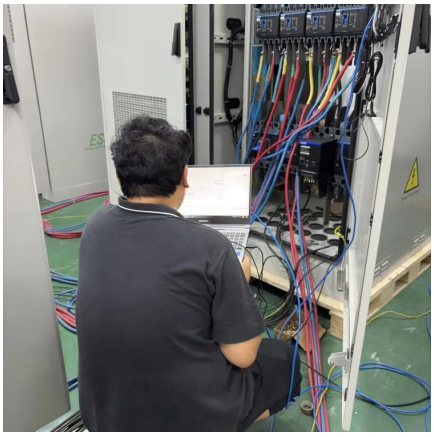

(PDF) Solar-assisted hybrid oil heating system ...

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(PDF) Solar-assisted hybrid oil heating system for heavy ...

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Analysis of a Solar-Assisted Crude Oil Refinery System

Solar tower technology gener-ating superheated steam at 550 °C is being used to energize high-temperature refinery processes such as heavy oil crack-ing reactions: CnHm -> ...

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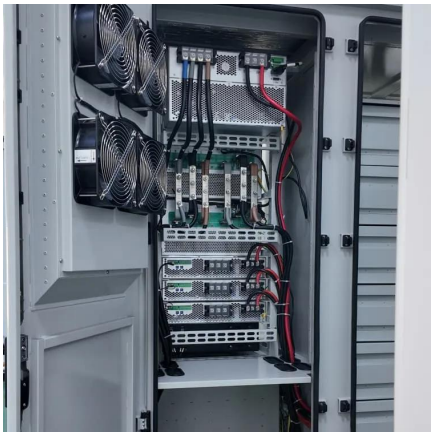

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Solar-assisted hybrid oil heating system for heavy ...

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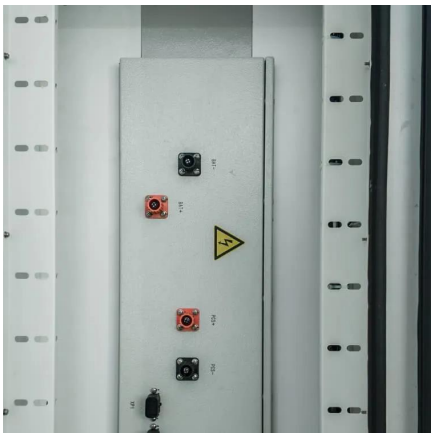

Solar Thermal Technologies for Process Heat Applications in Oil ...

Further, medium- to high-temperature steam can be generated using concentrating solar power systems which can replace conventional fuel boilers. This chapter deals with the ...

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Solar-assisted hybrid oil heating system for heavy refinery ...

The present study investigates the feasibility of solar hybrid system to generate steam in the oil refinery to maintain the temperature of heavy crude oil products before ...

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