
10kW Ayoun Photovoltaic Energy Storage Container for Oil Refineries

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.

Which HTFs can be used in a concentrating solar system?

CSP can use significantly hotter working fluids than non-concentrating solar systems. HTF oils such as Therminol VP-1 can be used in concentrated solar systems to function at temperatures as high as 400 °C. In this simulation, the PTC (Type 1245) from the standard TES thermal solar collector library has been selected.

How much HTF flows through a solar loop?

The inside diameter of the pipe is 50 mm at which HTF flows through the solar loop. Valenzuela et al. determined that the flow rate of the HTF per one row of solar collectors ranges between 0.35 and 0.80 kg/s. This range is designed for a non-looping single collector row.

What is the HTF per one row of solar collectors?

The HTF per one row of solar collectors ranges between 0.35 and 0.80 kg/s. This range is designed for a non-looping single collector row. This study considers a total mass flow rate of 15 kg/s entering and exiting the solar field. In a solar field, the weather is one of the influencing elements. For entering weather data, type 15-3 epw file is used.

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