Mobile Thermal Oil Regeneration Plant

Parabolic trough (PT) concentrated solar power (CSP) plants typically use a heat transfer fluid (HTF) to transport the thermal energy absorbed in the solar field collectors to the power block heat exchanger.

The most commonly used HTF in the solar thermal industry is a thermal oil composed of a eutectic mixture of biphenyl and diphenyl oxide, commercially known as Therminol VP-1 or Dowtherm A.

When the oil reaches the operating temperatures of a CSP plant (up to 400 °C), it undergoes slow decomposition and generates degradation products over time: hydrogen, light compounds (low-boilers), and heavy compounds (high-boilers). The concentration of these products above certain limits poses risks and inefficiencies for the system.

Currently, two strategies are commercially employed to treat the HTF. One consists of simple distillation treatment at the CSP plant itself, and the other involves transporting the HTF to a specialized treatment plant.

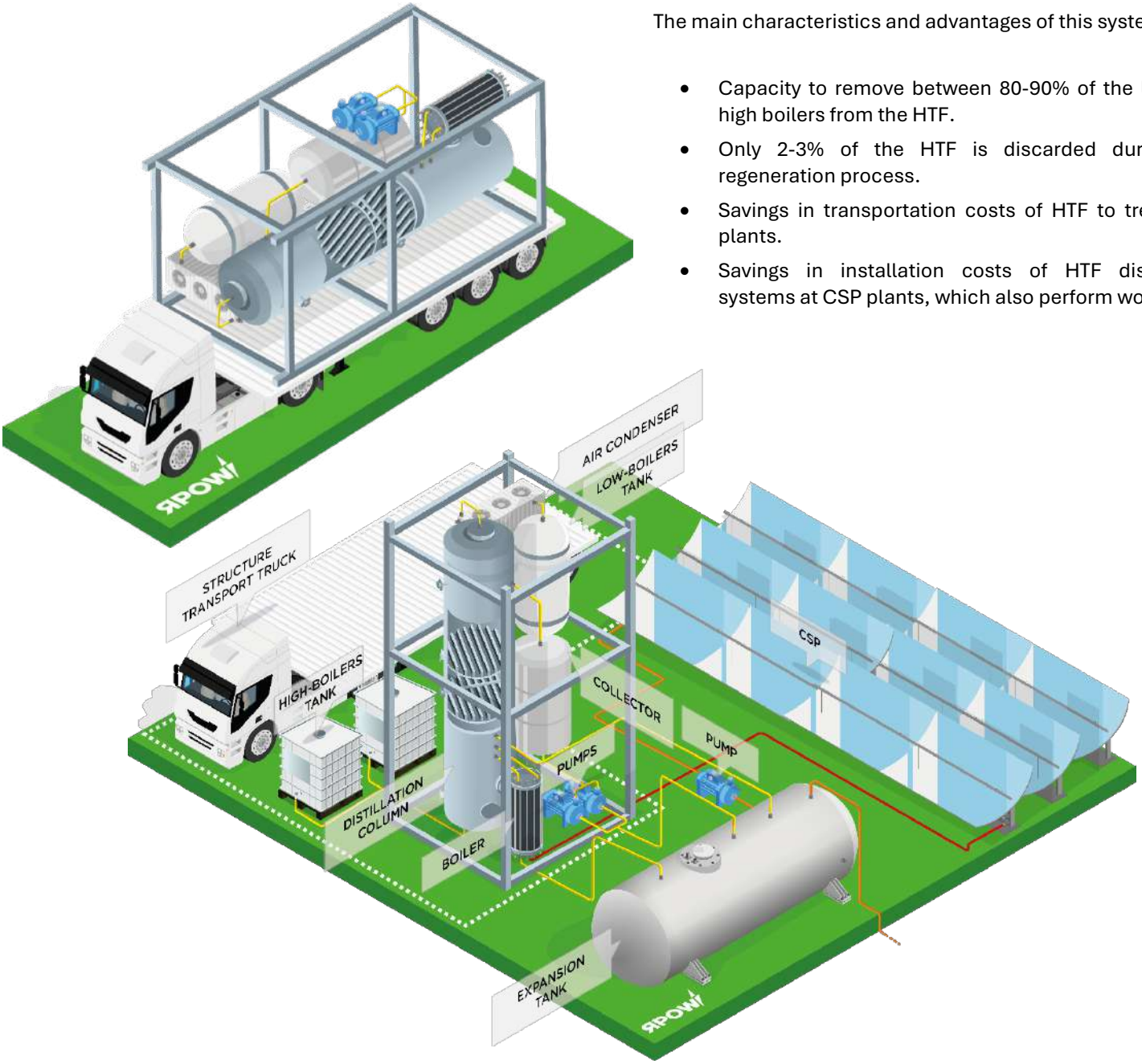
The first strategy is unable to effectively regenerate the HTF without significant oil losses. Approximately 30% of the HTF is lost to remove only 70% of the heavy compounds.

On the other hand, the second strategy involves transportation costs, depending on the distance to the treatment plant.

Destillation Technics has patented a mobile thermal oil regeneration plant capable of removing H_2, high-boilers, and low-boilers generated in the HTF. This mobile system can regenerate up to 48 tons of HTF per day.

The main characteristics and advantages of this system are:

- Capacity to remove between 80-90% of the low and high boilers from the HTF.
- Only 2-3% of the HTF is discarded during the regeneration process.
- Savings in transportation costs of HTF to treatment plants.
- Savings in installation costs of HTF distillation systems at CSP plants, which also perform worse.



+34 954 088 937
rpow@rpow.es

Spain
Av. de Innovación 0, Edificio Renta Sevilla, Office 1C, 41020. Seville. SPAIN.

USA
1000 N. Post Oak Rd., Suite 220. Houston TX 77055, USA.

United Arab Emirates
M08- Al Raffa, Al Raffa Area, Dubai. Dubai, UAE