

*Title:* **Corrosion study of metals immersed in phase change materials (PCM) at high temperatures. State of the art**

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A Concentrating Solar Power (CSP) plant is an installation that consists of Thermal Energy Storage (TES) system of the sun during the day, with mirrors oriented automatically to a central tower or parabolic through collector. Conventional thermal power stations do not store this energy but it distributes it directly to people. The advantage of these power stations is that this energy heat capture is used to heat a molten salt that is transferred to a storage tank, that allows you to use this energy until it is necessary to use release the stored heat to generate energy.

The inconvenient is that this melted salt, usually formed by mixtures of nitrate salts, at high temperatures becomes an ionic conductor causing serious corrosion problems in the materials from which the tanks are built.

This report consists of an introduction that will explain the reason for the storage of thermal energy, the different melted salts used, the types of tanks where they are stored and for which metals are built. Follow-up of the explanation of corrosion problems due to Heat Transfer Fluids (HTF) contained.

In the second part of this report, includes a collection of several corrosion rate studies in different salts, temperatures, exposure times, metals and methods, as well as a short explanation of the main methodologies used to determine these values. It also contains the relationships about Corrosion Rates (CR) in different metals and melted salts results obtained from these studies.

**Keywords:** Concentrated Solar Power (CSP), Heat Transfer Fluid (HTF), Thermal Energy Storage (TES), Molten salt, Corrosion Rate (CR)