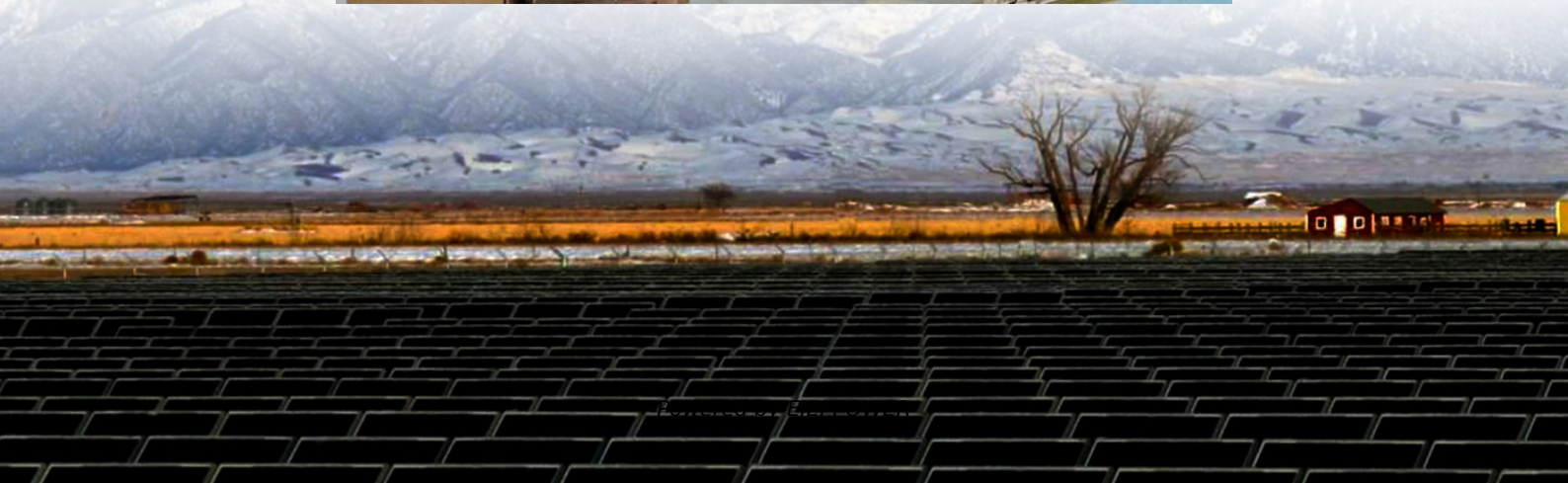


# **Corrosion-resistant solar-powered containers for water plants**





## Overview

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Why is molten salt protective film important for concentrating solar power plants?

Protective film formed by  $\text{CaCr}_2\text{O}_4$  deposition slows down the corrosion process. The molten salt thermal energy storage system is the most important composition of concentrating solar power plants, resulting in the corrosion behavior of alloys in molten salts is essential to be analyzed to ensure the long-term stability of the system.

Which Alloy owes the best corrosion resistance in solar salt?

Dorcheh et al. studied the corrosion behavior of ferritic steel, austenitic steel and Inconel625 alloy in solar salt at 600 °C, drawing a conclusion that Inconel625 alloy owed the best corrosion resistance.

Can solar salt be used in CSP plants?

The last material evaluated for use in Solar Salt is the low-Cr grade, T22, tested for 2000 h at either 390 or 550 °C . The results at 390 °C show small amounts of corrosion products at the end of the test, which allows the use of this type of steel in CSP plants at this temperature.

Do P plants accelerate corrosion of structural materials?

P plants will accelerate the corrosion of structural materials, e.g., Fe-Cr-Ni based alloys [9,23-30]. The detrimental effects of residual moisture and



## Corrosion-resistant solar-powered containers for water plants

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### High Temperature Corrosion Resistance in Molten Salts in Solar

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The actual technology for solar power plants-CSP have thermal storage system composed by molten salts. Molten salts technology means electrochemical electrolytes in contact with ...

### [A New Approach to Low-cost, Solar Salt Resistant](#)

Dec 7, 2021 · A New Approach to Low-cost, Solar Salt Resistant Structural Materials for Concentrating Solar Power (CSP) and Thermal Energy Storage (TES)



### Corrosion behavior of different alloys in novel chloride ...

Jul 1, 2025 · The superior corrosion resistance of Haynes230 can be attributed to its higher Ni and W content. These results are significant for optimizing the usage of novel molten salts and ...

### [A New Approach to Low-Cost, Solar Salt](#)

...

Dec 6, 2021 · This in principle makes the steel conceivable for structural CSP power plant application, with long-term resistance to molten salt corrosion ...



### [A New Approach to Low-cost, Solar Salt](#)

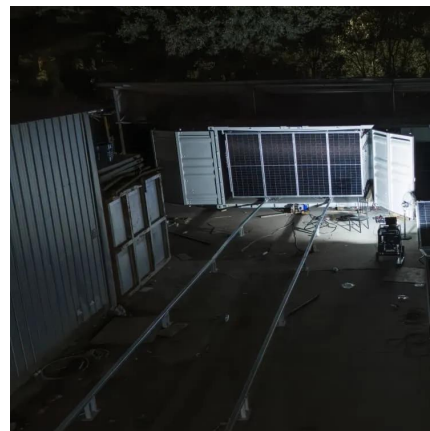
...

Dec 7, 2021 · A New Approach to Low-cost, Solar Salt Resistant Structural Materials for Concentrating Solar Power (CSP) and Thermal Energy ...



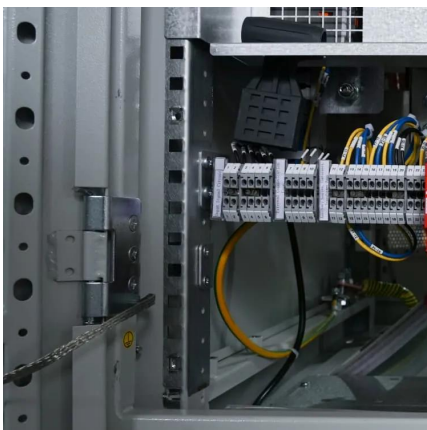
### [Corrosion evaluation and resistance study of alloys in](#)

Dec 2, 2023 · Thermal energy storage (TES) systems based on molten salt are widely used in concentrating solar power (CSP) plants. The investigation of the corrosion behavior of alloy ...



### [Molten chloride salts for next generation concentrated ...](#)

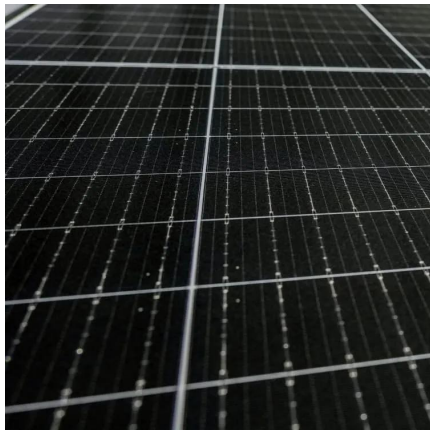
Dec 20, 2018 · Molten chloride salts for next generation concentrated solar power plants: Mitigation strategies against corrosion of structural materials





## Materials corrosion for thermal energy storage systems in ...

Apr 1, 2018 · The current commercial deployment of concentrating solar power (CSP) relies on a system of thermal energy storage (TES) for round the clock generation of electricity. The heat ...



## [Encapsulated High-Salt but Corrosion ...](#)

Mar 16, 2025 · This approach ensures sustainable and long-term passive cooling of solar cells. The high-salt but corrosion-resistant (HSCR) ...

## Encapsulated High-Salt but Corrosion-Resistant Hygroscopic ...

Mar 16, 2025 · This approach ensures sustainable and long-term passive cooling of solar cells. The high-salt but corrosion-resistant (HSCR) material has extremely high water adsorption and ...



## Compatibility of container materials for Concentrated Solar ...

Feb 1, 2020 · A corrosion test under dynamic conditions on common container materials used in TES systems for CSP Plants, CSA516 and SS347, was successfully performed with molten ...



## High-Temperature Molten Salt Tanks and Pipes

3 days ago · High-Temperature Molten Salt Tanks and Pipes Overview Concentrated solar power (CSP) plants can become cheaper if they become more efficient, but this will require ...



## **A New Approach to Low-Cost, Solar Salt-Resistant Structural ...**

Dec 6, 2021 · This in principle makes the steel conceivable for structural CSP power plant application, with long-term resistance to molten salt corrosion remaining a point of concern.

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