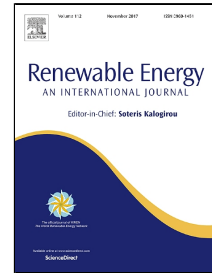


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Function Testing and Failure Analysis of Control System for Molten Salt Receiver System

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2 **System**

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14 **ABSTRACT**

15 The receiver system is an essential part of the solar tower power plant and it is
16 important for stable power generation. This paper introduces a molten salt receiver
17 system model and discusses structure selection of the cold surge tank under this model.
18 It seems the structure of cold surge tank has little effect on system performance. A
19 system simulation is used to create emergency conditions in order to directly
20 demonstrate the function of the cold and hot surge tanks. The results show the necessity
21 of both tanks. Cold surge tank can effectively improve the safety of receiver during
22 pump failure while hot surge tank can greatly increase the operation time during
23 downcomer blockage. The outlet temperature and level control failure are also
24 analyzed. The results demonstrate the possible consequences of a control system
25 failure.

26

27 **Key words:** Failure analysis, Molten salt, Receiver system, Cold surge tank, Hot surge
28 tank, control system

29

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