

# **STUDY OF THE USE OF MINERAL OIL AS A COOLING POLYCRYSTALLINE SILICON SOLAR PANEL WITH THE IMMERSION COOLING SYSTEM METHOD**

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## **ABSTRACT**

A solar power plant is a power plant that converts solar energy into electrical energy using solar panels. In converting energy in solar panels, there are several factors that influence the performance of a solar panel, one of which is the temperature of the panel. Cooling of solar panels is an alternative to increase the output power of PLTS, one example of cooling is done with the Immersion Cooling technique using mineral oil dielectric fluids. The purpose of this study is to determine the effect of cooling carried out and to determine the output power of solar panels without cooling and with cooling. This research was conducted for 9 days and was carried out in an attractive way. Research activities carried out include making tools, functional testing, and data analysis. The research method used is quantitative experiments with data collection techniques using instrumentation using the ANOVA test and Tukey analysis. This method is obtained through statistical procedures or calculations and is presented in the form of tables and graphs. The results of the research conducted are that the effect of cooling using the immersion cooling system which is left alone has a higher temperature because the cooling liquid is not flowing while the mineral oil liquid which acts as a coolant has a high temperature, causing the solar panels that are immersed to also have a high temperature. The output power of the two solar panels has the highest power value, namely the solar panel without cooling with an average power ratio of 1.36 watts and a power value without cooling of 5.50 watts while with cooling of 4.14 watts.

**Keywords:** *Cooling, Immersion Cooling, Mineral oil*