

9th, August, 2018

Review Report on

Title: Degradation of Heat Transfer Fluids in Thermal Solar Systems and Propane -1,3,-
Diol As a New Option

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Questions and Comments:

1. Please explain more detail on the advantages of propane-1,3-diol compared with propane-1,2-diol. It seems that thermophysical properties are not so different, so it is not clear that propane-1,3-diol is promising in which aspect.
2. In Fig.5-20, subcooling was observed only in the case of propane-1,3-diol. Is there any specific reason?
3. Caption of Fig.6-2 says “weekly energy production”, but the figure contains very long span and showing seasonal difference.
4. In Ch.6 Results and Discussion, please describe error range or uncertainty of the measurement regarding the figures and tables given in the section 6.1.1.
5. Please explain the difference between VO2007 and V2007. Is it like before and after filled in the system? Why they have recognizable differences on conductivity, density, viscosity, and copper concentration, while pH of them are almost the same.
6. Isn't there any possibility of water evaporation (or absorption) during storage of samples in refrigerator? Is there any effect on the measurement data?
7. Changes in property will affect the heat transfer characteristics and mechanical pumping power. Therefore, each property will have acceptable range of change from the viewpoint of system performance. I suggest to add some discussion from this standpoint.
8. Specific heat capacity and thermal conductivity will be also influential properties on characteristics of heat transfer fluid. Is there any difficulty to measure these properties, or they are not measured because they are not so important?

9. Small typos are found;

- Page 52, line 13, “aplied” → “applied”
- Page 52, line 13, “precisly” → “precisely”

Overall, the thesis is well written based on detailed and precise research work, and therefore, I recommend that the author be awarded the academic title of “Ph.D”.

Yours sincerely,

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