

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Optimum Working Fluid Selection For Rankine Cycle Using Redlich-Kwong Equation of State ARIEF BUDIMAN, DEBORAH SAUNDERSON, University of Calgary — Efficiency of Rankine cycle as a function of working fluid molecule is modeled using Redlich-Kwong equation of state. We have evaluated 12 molecules, ranging from water to ethylene glycol, and have parameterized their individual performance on several material parameters, including heat capacity and compressibility. This research aims to understand at the molecular level what drives some molecules to perform better at certain temperature and pressure range of the Rankine cycle. Immediate applications we are interested in are geothermal power, solar thermal energy conversion and waste heat recovery.

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Date submitted: 19 Nov 2010

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