



**SDI Review Form 1.6**

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| Journal Name:            | <a href="#">British Journal of Applied Science &amp; Technology</a> |
| Manuscript Number:       | 2015_BJAST_17350                                                    |
| Title of the Manuscript: | Isothermal and Adiabatic Expansion Based Trilateral Cycles          |
| Type of the Article      | Original Research Article                                           |

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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**PART 1: Review Comments**

|                                     | Reviewer's comment                                                                                                                                                                                                                                                                                                                                                                       | Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <b>Compulsory</b> REVISION comments |                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Minor</b> REVISION comments      | <p>1<br/>Data taken for Helium for the case study is from the reference [6], thus authors cannot claim it as original research.</p> <p>2<br/>Since it is kind of computation from the secondary data, thus need to be more elaborated or validated by the experimental results, while claiming thermal efficiency high to the extent of 41.9% for He considering Carnot Factor 9.1%.</p> | <p>1<br/>The characteristics of the investigated cycles undergoing specific working fluids such as nitrogen, carbon dioxide, helium, hydrogen etc., exhibits some chemical and physical properties that depends on the state variables at any state point of a thermal cycle (the investigated thermal cycle). Consequently, in order to know at any moment the standardised characteristics of a working fluid (under accurately values worldwide accepted), a standardised database must be used, and cited as reference in any research work that uses such database in order to indicate to other researchers that the used values obey the cited database. In this case we are using the NIST (National Institute of Standards and Technology) USA, which stands for :</p> <p><b>NIST Standard Reference Database 23</b><br/> <b>NIST Reference Fluid Thermodynamic and Transport Properties—REFPROP</b><br/> Version 7.0<br/> Users' Guide<br/> Eric W. Lemmon<br/> Mark O. McLinden<br/> Marcia L. Huber<br/> Physical and Chemical Properties Division<br/> National Institute of Standards and Technology<br/> Boulder, Colorado 80305<br/> August, 2002<br/> <b>U.S. Department of Commerce</b><br/> Technology Administration</p> |



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|  | <p>National Institute of Standards and Technology<br/>Standard Reference Data Program<br/>Gaithersburg, Maryland 20899</p> <p><b>Characteristics of the program:</b><br/>REFPROP is an acronym for REference Fluid PROPERTIES. This program, developed by the National Institute of Standards and Technology (NIST) provides tables and plots of the thermodynamic and transport properties of industrially important fluids and their mixtures with an emphasis on refrigerants and hydrocarbons.</p> <p>REFPROP is based on the most accurate pure fluid and mixture models currently available. It implements three models for the thermodynamic properties of pure fluids: equations of state explicit in Helmholtz energy, the modified Benedict-Webb-Rubin equation of state, and an extended corresponding states (ECS) model. Mixture calculations employ a model which applies mixing rules applied to the Helmholtz energy of the mixture components; it uses a departure function to account for the departure from ideal mixing. Viscosity and thermal conductivity are modeled with either fluid-specific correlations or an ECS method.</p> <p>These models are implemented in a suite of FORTRAN subroutines. They are written in a structured format, are internally documented with extensive comments, and have been tested on a variety of compilers. Routines are provided to calculate thermodynamic and transport properties at a given (T, <math>\rho</math>, x) state. Iterative routines provide saturation properties, including surface tension, for a specified (T, x) or (P, x) state. Flash calculations describe single- or two-phase states given a wide variety of input combinations [(P, h, x), (P, T, x), etc].</p> <p>2</p> <p>The data used is recognised worldwide for the study of any thermal cycle. However in order to extend the validity of the previous study the analysis of the proposed cycles has been also extended to different working fluids such as carbon dioxide, nitrogen and hydrogen, which certainly present different interesting behaviours.</p> |
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|                                            |                                                                                                                                                                                                                                                                                                                                                                       | Thank you for your effort and help on trying to improve the paper |
| <b><u>Optional/General</u></b><br>comments | Article is well structured and gap of work is also defined as the study is to efficiently convert low temperature heat mainly from ocean, geothermal, solar and industrial residual power sources by means of the proposed thermal cycle into electric energy.<br>It appears to be good article and can be considered for publication after adding revision comments. |                                                                   |