Research Title: Radiant Recirculated Cover Using Cordierite Alumina Open-cellular Porous Material

Researcher: 1. Assist. Prof. Dr. Preecha Khantikomol

2. Dr. Maitree Polsongkram

3. Assist. Prof. Dr. Bundit Krittacom

4. Assist. Prof. Amorntud Juajamsai

University : Rajamangala University of Technology Isan

Faculty : Engineering and Architecture **Department :** Mechanical Engineering

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ABSTRACT

The present study aims to thermal efficiency improvement of household cooking burner using cordierite alumina open-cellular porous material gas stove cover. Three types of porous cover have been modeled, which were STPC_CrAl#13, ICPC_CrAl#13 and ICPC_CrAl#20. Those porous cover have been used to cover the conventional burner (Low pressure LPG gas stove). The thermal efficiency of the burner was test on the Boiling Test according to the DIN EN 203-2 standard. Then, the results have been compared with the case without porous cover. The results revealed that the temperature at the pot bottom and surrounding were higher than the case without porous cover due to the effect of thermal radiation that emit from the porous media. At Q = 1.5 kW, obviously, the thermal efficiency of ICPC_CrAl#20 were 35%, which were higher the case of without porous cover 11%. Moreover, the thermal efficiency of the ICPC_CrAl#20 were higher than the STPC_CrAl#13 and ICPC_CrAl#13 10% and 9%, respectively.

***Keywords*:** Household cooking burner, Porous gas stove cover, Percentage energy saving.