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Thermal Efficiency Study of Conventional Kerosene Pressure Stoves Equipped with Porous Radiant Inserts

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Abstract

In this study, the thermal efficiency of a conventional kerosene pressure stove equipped with porous radiant inserts have been investigated. Four different porous materials, viz., silicon carbide (SiC), zirconia (ZrO₂), wire mesh roll filled with metal balls and alumina (Al₂O₃) have been used as porous radiant inserts. The inserts have been found to increase the efficiency of the conventional stove from 55% to 62%. SiC insert exhibited the highest efficiency (62%). Additionally, the flow rate and the vessel size have been optimized for the best thermal efficiency.

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