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EXERGY (SECOND LAW) ANALYSIS OF STEAM BOILERS IN SRI LANKA

By

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This Thesis was submitted to the Department of Mechanical Engineering of the University of Moratuwa in partial fulfillment of the requirements for the Degree of Master of Engineering in Energy Technology

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and behalf, it contains no material previously published or written by another person nor material, which to substantial extent, has been accepted for the award of any other academic qualification of a university or other institute of higher learning except where acknowledgment is made in the text.

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Abstract

In this study, exergy analysis was carried out for boilers. A sample of 100 Nos. of boilers was selected and input and output streams for each boiler were studied. Exergy and energy balance for each boiler was evaluated and theoretical analysis was carried out using these results.

Variation of exergy efficiency with flue gas temperature and excess air, variation of exergy efficiency with energy efficiency, variation of CO₂ emission with exergy efficiency, variation of cost of steam with exergy efficiency and variation of exergy destruction with excess air and flue gas temperature were presented. The theoretical background for these variations were discussed.



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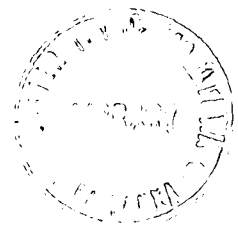


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