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CONSTRUCTION AND TESTING OF AN APPARATUS FOR THERMAL CONDUCTIVITY MEASUREMENT

A PROJECT REPORT PRESENTED BY

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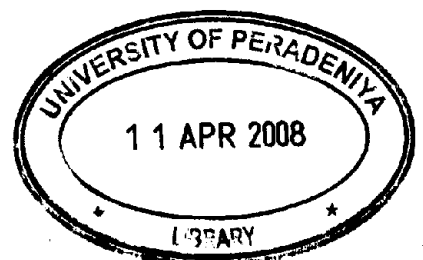
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ABSTRACT

CONSTRUCTION AND TESTING OF AN APPARATUS FOR THERMAL CONDUCTIVITY MEASUREMENT

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This report presents values of Thermal conductivity for locally available materials. An apparatus was designed and used to determine the values for different types of materials. It is more suitable to the low thermal conducting building materials, clothes, carpets, blankets etc. Measurements taken by this apparatus have been compared with those obtained using Lee's disc apparatus.

The apparatus was designed with a material having high thermal conductivity. In this regard, brass was selected to design the apparatus. The apparatus can be used to measure the thermal conductivity values for poor conducting materials. It was used to obtain the thermal conductivity values for clothes, food items, building materials, and soil samples. Thermal conductivity values of some materials were obtained using the apparatus and Lee's disc method was used to calibrate the apparatus. Same values of thermal conductivities were obtained through both methods for some selected materials.

In this apparatus, two samples were used; one as a reference sample with known thermal conductivity and the other one was the sample for which thermal conductivity had to be estimated.

The apparatus was constructed using a simple approach using very cheap materials but, it could be used to measure the thermal conductivity of poor thermal conducting materials.

The values of thermal conductivity for locally available materials are given in my report which was not available in the literature.